A HELP TO CALCULATION.

OR

Two Tables: the one of Decimal numbers, and the other of their Logarithmes, for the ready converting of Sexagenary Tables into Decimal, and the contrary. And for the finding of the part proportional in all Sexagenary TABLES.

As also Tables of Declination, Right and Oblique Ascensions, Ascensional Difference, and other Tables of the *Primum Mobile*, for the speedy and exact erecting of a Figure: In all which the use of the former Tables in taking the part proportional will appear.

By *J. Newton.*

LONDON,

Printed by *Ioseph Moxon*, and sold at his shop on Cornhil, at the sign of *Atlas*, 1657.

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To the Courteous Reader.

THat the vulgar parts of Arithmetick, as Addition, Substraction, Multiplication and Division are much easier in whole numbers than in fractions is not to be disputed: but how that difficulty which is in vulgar fractions may be (if not removed, yet at lest) abated, many ingemous Artists have earnestly indeavoured: and Decimal Arithmetick which some are pleased to stile a new invention, hath by those famous men of our own Nation, Briggs, Gellibrand, & Oughtred, been found the best and readiest help. But if we well consider, that the number of Characters by which all numbers are expresst are only ten, nine digits and a cypher; we may (in my apprehension) stile this Decimal way, a Restauration of Arithmetick to the first and most ancient principles of that Noble Science.

Nor can I any more perceive what grounds or reasons former Ages had for their at first departing from this Decimal way, than I can for our not returning to it: I shall not undertake to devine the reasons of the one, but custome (as I perswade my self) is the best plea that can be given for the other: and that, I confesse, is hard to be changed in general without the stamp of Authority, and this is not easie to be procured, unlesse the Project bring more profit to the private undertaker, then to the publique: But why it should not be done in Astronomical Tables, and such like, which come to the scanning of none but Artists can never be sufficiently admired: if such whose Genius leads them to these noble Studies, will not depart from this tedious and troublesome sexagenary way themselves, it were to be wished that others might not be forced to it, as of necessity they must, until there be Tables published in another form, the which God willing shall not long be wanting; and that those Decimal Tables of Astronomy which are intended, may be readily compared with these Sexagenary Tables already published, or now in the Presse: in the first of these insuing Tables thou maist readily find the Decimal of any sexagenary minutes and seconds, whether in time or motion, and the contrary; the construction whereof we will shew first, and then the use.

PROBLEME I.

To turn ſexagenary numbers into decimal, and the contrary.

THe decimal of a fraction given is uſually found by the Rule of three, or golden rule of proportion in this manner:

As the denominator of a fraction, is to the Numerator: ſo is 10 *or* 100, *to the decimal parts required.*

Now then there being 60 *minutes in a degree or hour the decimal anſwering unto* 12 *minutes, or to the fraction* $\frac{12}{60}$ *may thus be found, As* 60 *is to* 12, *ſo is* 100 *to* 20.

Again, there being 3600 *ſeconds in a degree or hour, to finde the decimal anſwering unto* 16 *ſeconds, or to* $\frac{16}{3600}$, *I ſay,*

As 3600 *is to* 16, *ſo is* 10.000, *to* 0044.

And according to theſe directions you may find the Decimals anſwering to any thirds, fourths, fifths, or any other fraction of a degree.

Or the decimal anſwering to one minute, one ſecond, one third, &c. may thus be found: By the former propoſition, a unit with cyphers is the decimal of one degree, or 60 *minutes; and if* 100.000 *be the decimal of* 60 *minutes,* 50.000, *which is the half of it, muſt be the decimal of* 30 *minutes,* 250.000 *the decimal of* 15 *minutes, and* 08333, *which is the third part of* 25.000, *is the decimal of five minutes, and* 01666, *the fifth part of* 08333, *is the decimal of one minute, and thus proceeding downward you may alſo find the decimal of a ſecond, third, fourth or fifth, or any other fraction part of a degree propounded, or of the fraction parts of any other integers whatſoever. And having found the decimal of the leaſt part deſired, the reſt are eaſily found by a continual addition of that unto it ſelf, until you have made as many decimal numbers, as there are fraction parts in the integer propounded. Thus* 03333, *the double of* 01667 *is the decimal of two minutes,* 05000 *the decimal of* 3, *&c.*

The fraction anſwering to any decimal is alſo found by the Rule of three, in this manner: As 100.000, *to the decimal number given; ſo is the Denominator of a fraction, to the Numerator. And therefore, as* 100 *to* 20, *ſo* 60 *to* 12. *By this you may ſee the*

the construction of the Decimal table, the use whereof is two-fold: First,

Probl. 2.

To finde the decimal of any sexagenary number, and the contrary.

Let it be required to find the decimal answering to 37 minutes 25 seconds, 16 thirds, 5 fourths, 29 fifths in motion.

In the first page of the Table, I find 37 minutes 12 seconds, which is the neerest lesse, and 62 answering thereunto, and in the third column of the second page I find in the top 12 seconds, and looking downward in the same column till I come to 25 seconds, I find in the last column of the page, right against the 25 seconds, this number 36111111, which being annexed to 62.

The decimal of 37 min. 25 seconds	6236111111
The decimal of 16 thirds	0000740741
The decimal of 5 fourths	0000003858
The decimal of 29 fifths	0000000373
Their sum is the decimal sought	6236856083

Example 2.

If it be required to find the decimal of 8 hours, 17 minutes; you must first find how many minutes and seconds in motion do answer to your hours and minutes in time by the top of the Table of Logarithmes, and in the 24 page of these Tables, I find that 40 minutes in motion are answerable to 8 hours in time, and in the table before that I find that one minute 25 seconds in motion are answerable unto 17 minutes in time, which being added to the 40 minutes, the summe is 41 minutes, 25 seconds, and the decimal thereof, by the last Probleme, is 6902777118.

To find the parts of a degree in motion, or of a day in time answering to any Decimal given, is but the contrary work to the former, and needeth no example.

Probl. 3.

To find the part proportional in all sexagenary Tables.

The part proportional in all sexagenary Tables is somewhat troublesome to find, either by the numbers themselves given,

or by a usual Sexagenary Table; but by this Table it will be easily found, either by Multiplication onely, or onely by Division. If a degree or a day be the first term in the proportion, the part proportional will be found by Multiplication onely, otherwise by Division.

Example.

	Decimals
If one degree	100.000
Give 7 minutes 45 seconds	12916
What will 27 minutes give	45000
The product of the second and third	0581220000

Which being sought in the Table, gives 3 minutes, 29 seconds.

Example 2.

	Decimals
If 23 minutes 15 seconds	3875
Give one degree	100.000
What shall 3 minutes 27 seconds give	05750
The product of the second and third	0575000000

Which being divided by the first term, the quotient shall be 01483, the decimal of 8 minutes, 54 seconds.

But this may be more readily found by the Table following, in which you have the Logarithmes of these decimal numbers, whose construction and use is thus.

Probl. 4.

To make the Logarithme answering to the decimal parts of a Degree.

The construction of Logarithmes in the general is fully explained by M. Briggs *in his* Arithmetica Logarithmica, *an Epitome whereof you may see in Mr.* Wingates *Construction of Logarithmes, or in mine own Mathematical Institution: That which I here intend is onely to shew you how from thence this Logarithmetical way was deduced. I need not tell you that Logarithmes do perform that by Addition and Substraction, which in vulgar numbers must be made Multiplication and Division.*

Though

Though the Logarithmes of these decimal numbers then, are to be made by the same rule with the decimal numbers themselvee, that is, by the rule of three; yet is their construction by that Rule much easier then the construction of the other; but the tedious work in the construction of the Decimals by the rule of three is avoided by other rules, as hath been shewed already, which cannot be in the construction of the Logarithmes of those Decimals, yet for use the Table of Logarithmes is much neater and easier, nor is the construction so very difficult. For,

		Logarithms
As 60	*co. ar.*	8.2218488
Is to 12		1.0791812
So is 100		2.0000000
To 20		1.3010300

PROBL. 5.

To find the part proportional in all Sexagenary Tables, by this Table of Logarithmes.

IN this Table of Logarithmes you have the minutes on the head, and the seconds in the side, and in their common Area the Logarithm thereof; thus the Logarithm of 7 minutes 45 seconds will be found 9.111149. But if you were to find the Logarithm of any part of a day, there is a little more trouble; for by the first leaf of this Table you must see how many minutes and seconds of a degree do answer to the minutes of an hour given. As if it were required to find the Logarithme of 9 hours 39 minutes: by the Table of Logarithmes 45 minutes in motion do answer to 9 hours in time, making 12 hours the Integer, and by the first leaf of this Table 3 minutes 15 seconds do answer to 39 minutes, and the Logarithme answering to 48 minutes 15 seconds is 9.905345, the which is also the Logarithm of 9 hours 39 minutes. Now then to illustrate the use of this Table by example, suppose the question were this;

If one degree	10.000000
Give 7 minutes 45 seconds	9.111149
What shall 27 minutes give	9.653212
The answer is 3 minutes 29 seconds	8.764361

Exam-

Example 2.

If 23 minutes 15 seconds	*Substract*	9,588271
Give one degree		10.000000
What shall 3 minutes 27 seconds give		8.759667
The answer is 8 minutes 54 seconds		9.171396

Example 3.

If the Sun in one day move 59 min. 38 sec. how much doth he move in 21 hours 44 min. In this question a day is supposed to consist of 24 hours, whereas our Table hath but 12, I therefore take the half thereof, and say

If 12 hours	10.000000
Give 29 min. 49 sec.	9.696387
What shall 9 hours 44 minutes give	9,909079
The answer is 24 min. 11 sec.	9.605386

Which being added to 29 min. 49 sec. the motion answering to 21 hours 44 min. is 54 min. 0 sec.

By this little which hath been said, there is enough to demonstrate either of these Tables to be much more ready for practice than that which hath been hitherto used, and of the Table of Logarithms we shall yet add some few examples in taking the part proportional in the Tables following.

PROBL. 6.

The use of the table of Declinations.

HAving done with the decimal Tables, and Tables of Logarithmes, we now come to the Primum Mobile, *or Doctrine of the Sphere, in which the first Table that needeth any explanation is a Table of Declinations.*

And there the Declination of the Sun or other planet is found by the sign in the head or foot, and the degree on the right side, if the sign be in the foot, or on the left side, if it be in the head; for the common angle gives the Declination sought, if you have respect to your Planets proper latitude, and the part proportional.

For example. *Suppose the moon were in 19 degrees 53 min. of Leo, and her declination were required, having North latitude 3 degrees.*

The

followed at ye other end of this Book

(7) The former difference is before my tables.

The declination in that Latitude to	19d. of Leo is	18d.	01 m.
	20d. of Leo is	17	42
Their difference is		00	19

Now if one degree give 19 min. 9.500601
VVhat ſhall 33 min. give? 9.740362
The anſwer is 10 min. 27 ſec. 9.240963

Which being ſubſtracted from 18.01, *becauſe the declination doth decreaſe, the moons declination will be* 17 *d.* 51 *m.* 27 *ſec.*

PROBL. 7.

The uſe of the table of Right Aſcenſions.

THe Right Aſcenſion by the Table following is had by the ſign in the head, and the degree in the left ſide, and in the common angle is the Right Aſcenſion.

Example. *If the Right Aſcenſion of a planet in* 12*d.* 15 *m. of Aries, and* 2 *deg. of ſouth latitude be ſought.*

The Right aſcenſion of	13deg.	12.	44
	12deg.	11.	49
Difference		00.	55

If one degree give 55 min. 9.962210
VVhat ſhall 15 min. give? 9.397939
The anſwer is 13.44 9.360149

Which being added to 11*d.* 49*m. the Right Aſcenſion of the point ſought will be* 12.02.44. *But if the Right Aſcenſion of the point ſought be in Southern ſigns, you muſt add* 180 *d. to the arch found in the Table, and you have your deſire. Thus the right aſcenſion of* 12 *d.* 15 *m. of* Libra, *with two degrees of North latitude, by adding* 180 *to the former arch will be* 192.02.

PROBL. 8.

To find the Aſcenſional difference.

THe aſcenſional difference of any part of the Zodiack is found by the deg. of declination in the left ſide, and the deg. of the Poles elvation in the head, the common angle gives the aſcenſional difference ſought. Example. *Let a planets declination be* 4.26, *whoſe aſcenſional difference is ſought under the elevation of* 52 *deg. The aſcenſional difference in that elevation anſwering to* 5 *deg. of declination is* 6.26, *to* 4 *deg. is* 5.08, *difference* 1.18

If one degree give 1.18.	8,335791
VVhat ſhall 26 min. give	9.656821
The anſwer is 33 min.	7.972612

Which being added to 5.08, *the aſcenſional difference of the point ſought will be* 5.41.

Probl. 9.

To find the Oblique aſcenſion.

THe oblique aſcenſion of any part of the Zodiack is found by the ſign and degree in the firſt column on the left hand, and the Poles elevation on the head of the table, the common angle will give you the oblique aſcenſion ſought.

Example. *Let the oblique aſcenſion of* 9 *deg.* 14 *min. of Virgo in the elevation of* 42 *deg. be ſought.*

The Oblique aſcenſion of	10 deg. is	154	26
	6 deg. is	145	18
	Difference	5	8

If 4 deg.	8.823908
Give 5 d. 8 m.	8.932247
What ſhall 3 d. 14 m. give?	8.731499
Their ſumme	17,663746
From which ſubtract the firſt, the anſwer is 4.09	8,839838

Which being added to 149.18, *the Oblique aſcenſ. will be* 153.27

Probl. 10.

To find the Mid-heaven.

THeſe things premiſed, the Right aſcenſion of the Midheaven, and thereby the Midheaven it ſelf will eaſily be found, for the hours from noon converted into Æquinoctial degrees, (by the Table for that purpoſe) being added to the Suns right aſcenſion, do make the right aſcenſ. of the Mid-heaven, which ſought in the table of Right Aſcenſions gives the Midheaven it ſelf.

Example. *Let the Sun be in* 4 *deg.* 4 *min. of Virgo, the time from noon* 18 *hours* 27 *min.*

The Suns Right Aſcenſion in	4 deg. is	155	54
	5 deg. is	156	51
	Difference		57

If

If one degree give 57 minutes	9,977723
What ſhall 4 minutes give?	8,823908
The anſwer is 3 min. 48 ſec.	8.801631

Which being added to 155.54. the Suns Right Aſcenſion is 155,58 *feré.*

The Æquinoctial degrees anſwering to 18 *hours,* viz. 270 *d. and the degrees anſwering to* 27 *min. of an hour are* 6 *deg.* 45 *min. and therefore the Right Aſcenſ. of time is* 276.45, *which being added to the Suns Right aſcenſ. their aggregate* 432.43, *or rejecting* 360, *the remainer* 72.43 *is the Right aſcenſ. of the Midheaven, whereto anſwers in the Table of Right Aſcenſions* 14 *deg.* 40 *min. of* Gemini, *which is the point of the Ecliptique for the Midheaven it ſelf.*

PROBL. II.

To finde the Cuſps of the other Houſes.

THe Oblique Aſcenſions of the other Houſes are found by a continual addition of 30 *deg. to the right aſcenſ. of the Midheaven. Thus the oblique aſcenſ. of the* 11 *houſe is* 102.43. *of the* 12 *houſe* 132.43, *of the Aſcendant* 162.43, *of the ſecond houſe* 192.43. *of the third houſe* 222.43.

The Poles elevation above the circle of Poſition of the Aſcendant is alwayes the ſame with that of the place, for which the Figure is erected; the Poles elevation for the 11, 12, 2, *and* 3 *houſes, you may find in the Table for that purpoſe, annexed to the Table of the Poles elevation above any circle of poſition.*

Example. *By that Table under our elevation of* 51,32, *the poles elevation above the circles of poſition of the* 11 *and* 3 *houſes is* 32,11, *and the poles elevation above the* 12 *and* 2 *houſes is* 47,28.

Now then to find the cuſp of the 11 *houſe, look the oblique aſcenſion thereof* 102.43 *in the table of Oblique aſcenſions anſwering to* 32.11 *of elevation, and the point of the Ecliptique anſwering thereunto is* Cancer 24.58. *In like manner, if you look the oblique aſcenſ. of the* 12 *houſe,* 132.43 *under the elevation of* 47.28. *the cuſp thereof will be* Leo 25.15. *If you look the oblique aſcenſ. of the Aſcendant* 162.43. *under the elevation of* 51,32, *the cuſp thereof will be* Virgo 17,56. *If*

If you look the oblique ascension of the second house 192,43 under the elevation of 47,28, the cusp will be Libra 9.26.

Lastly, if you look the oblique ascension of the third house 222. 43, under the elevation of 32,22, the cusp will be Scorpio 6,21.

The other six houses are in the same degrees and minutes of the opposite signes.

PROBL. 12.

To find the Poles elevation above any circle of position.

THe Poles elevation above the Horizon of a star is found by the degree of his Declination in the second column of the right hand page of the Table, if the Declination thereof be North under the earth, or South above it; and in the second column of the left hand page, if the Declination be South under the earth, or North above it, and his distance from the Meridian in a straight line, for in the head of your Table in a direct line (using a double proportion if need be) you shall have the degree of the Poles elevation above the circle of position.

Example. *Let the Sun be in 4 deg. 4 minutes of* Virgo, *and his declination 10 degrees 3 minutes North above the earth, his distance from the Meridian 83 deg. 9 min. Now then to finde the Poles elevation, I look in that Table for the Suns declination in the second column of the left hand page, and his distance from the Meridian in a straight line, and in that last Folio of that table I find against 10 degrees of declination the distance of a star from the Meridian neerest to my number to be 83,22, and over the head thereof 50, which is the degree of the Poles elevation above that circle of position.*

MVSEVM BRITANNICVM.

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For the finding of the Part Proportionall *in all Sexagenary Tables*

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C	M.S.	C	M.S.	C	M.S.
1	0.36	34	20.24	67	40.12
2	1.12	35	21. 0	68	40.48
3	1.48	36	21.36	69	41.24
4	2.24	37	22.12	70	42. 0
5	3. 0	38	22.48	71	42.36
6	3.36	39	23.24	72	43.12
7	4.12	40	24. 0	73	43.48
8	4.48	41	24.36	74	44.24
9	5.24	42	25.12	75	45. 0
10	6. 0	43	25.48	76	45.36
11	6.36	44	26.24	77	46.12
12	7.12	45	27. 0	78	46.48
13	7.48	46	27.36	79	47.24
14	8.24	47	28.12	80	48. 0
15	9. 0	48	28.48	81	48.36
16	9.13	49	29.24	82	49.12
17	10.12	50	30. 0	83	49.48
18	10.48	51	30.36	84	50.24
19	11.24	52	31.12	85	51. 0
26	12. 0	53	31.48	86	51.36
21	12.36	54	32.24	87	52.12
22	13.12	55	33. 0	88	52.48
23	13.48	56	33.36	89	53.24
24	14.24	57	34.12	90	54. 0
25	15. 0	58	34.48	91	54.36
26	15.36	59	35.24	92	55.12
27	16.12	60	36. 0	93	55.48
28	16.48	61	36.36	94	56.24
29	17.24	62	37.12	95	57. 0
30	18.00	63	37.48	96	57.36
31	18.36	64	38.24	97	58.12
32	19.12	65	39. 0	98	58.48
33	19.48	66	39.36	99	59.24
				100	60. 0

0	36	12	48	24	00000000
1	37	13	49	25	02777778
2	38	14	50	26	05555555
3	39	15	51	27	08333333
4	40	16	52	28	11111111
5	41	17	53	29	13888889
6	42	18	54	30	16666667
7	43	19	55	31	19444444
8	44	20	56	32	22222222
9	45	21	57	33	250
10	46	22	58	34	27777778
11	47	23	59	35	30555555
12	48	24	1.00	36	33333333
13	49	25	1	37	36111111
14	50	26	2	38	38888889
15	51	27	3	39	41666667
16	52	28	4	40	44444444
17	53	29	5	41	47222222
18	54	30	6	42	5000
19	55	31	7	43	52777778
20	56	32	8	44	55555555
21	57	33	9	45	58333333
22	58	34	10	46	61111111
23	59	35	11	47	63888889
24	1.00	36	12	48	66666667
25	1	37	13	49	69444444
26	2	38	14	50	72222222
27	3	39	15	51	750
28	4	40	16	52	77777778
29	5	41	17	53	80555555
30	6	42	18	54	83333333
31	7	43	19	55	86111111
32	8	44	20	56	88888889
33	9	45	21	57	91666667
34	10	46	22	58	94444444
35	11	47	23	59	97222222

	Thirds	Fourths	Fifths
1	0000046296	0000000772	0000000013
2	92593	1573	26
3	138889	2315	39
4	185185	3046	51
5	231481	3858	64
6	277778	4630	77
7	324074	5401	90
8	370370	6173	103
9	416667	6944	116
10	462963	7716	129
11	509259	8488	141
12	555556	9259	154
13	601852	10031	167
14	648148	10802	180
15	694444	11574	193
16	740741	12345	206
17	787037	13117	219
18	833333	13889	232
19	879630	14660	245
20	925926	15432	258
21	972222	16204	270
22	1018518	16975	283
23	1064814	17747	296
24	1111111	18518	309
25	1157407	19290	322
26	1203703	20062	335
27	1250000	20833	348
28	1296296	21605	360
29	1342592	22376	373
30	1388888	23148	386

	Thirds	Fourths	Fifths
31	00001435184	0000023920	0000000399
32	1481481	24691	412
33	1527777	25463	425
34	1574073	26234	438
35	1620370	27006	450
36	1666666	27778	463
37	1712963	28549	476
38	1759259	29321	489
39	1805556	30092	502
40	1851852	30864	515
41	1898148	31636	527
42	1944444	32407	540
43	1990740	33179	553
44	2037037	33950	566
45	2083333	34722	579
46	2129629	35494	592
47	2175925	36265	605
48	2222222	37037	618
49	2268518	37808	630
50	2314815	38580	643
51	2361111	39352	656
52	2407407	40123	669
53	2453703	40895	682
54	2500000	41666	694
55	2546296	42438	707
56	2592592	43210	720
57	2638889	43981	733
58	2685185	44753	746
59	2731481	45524	759
60	2777778	46296	772

0	24	48	12	36	
1	25	49	13	37	0000115740
2	26	50	14	38	231481
3	27	51	15	39	347222
4	28	52	16	40	462962
5	29	53	17	41	578702
6	30	54	18	42	694444
7	31	55	19	43	810184
8	32	56	20	44	925924
9	33	57	21	45	1041666
10	34	58	22	46	1157407
11	35	59	23	47	1273148
12	36	60	24	48	1388889
13	37	1	25	49	1504629
14	38	2	26	50	1620370
15	39	3	27	51	1736110
16	40	4	28	52	1851851
17	41	5	29	53	1967592
18	42	6	30	54	2083333
19	43	7	31	55	2199074
20	44	8	32	56	2314814
21	45	9	33	57	2430555
22	46	10	34	58	2546296
23	47	11	35	59	2662036
24	48	12	36	60	2777778

6 M.	0		1		2		3		4	
S.	M.	S.	M.	S.	M.	S.	M.	S.	M.	S.
0	00	00	12	00	24	00	36	00	48	00
1	00	12	12	12	24	12	36	12	48	12
2	00	24	12	24	24	24	36	24	48	24
3	00	36	12	36	24	36	36	36	48	36
4	01	48	12	48	24	48	36	48	48	48
5	01	00	13	00	25	00	37	00	49	00
6	01	12	13	12	25	12	37	12	49	12
7	01	24	13	24	25	24	37	24	49	24
8	01	36	13	36	25	36	37	36	49	36
9	01	48	13	48	25	48	37	48	49	48
10	02	00	14	00	26	00	38	00	50	00
11	02	12	14	12	26	12	38	12	50	12
12	02	24	14	24	26	24	38	24	50	24
13	02	36	14	36	26	36	38	36	50	36
14	02	48	14	48	26	48	38	48	50	48
15	03	00	15	00	27	00	39	00	51	00
16	03	12	15	12	27	12	39	12	51	12
17	03	24	15	24	27	24	39	24	51	24
18	03	36	15	36	27	36	39	36	51	36
19	03	48	15	48	27	48	39	28	51	48
20	04	00	16	00	28	00	40	00	52	00
21	04	12	16	12	28	12	40	12	52	12
22	04	24	16	24	28	24	40	24	52	24
23	04	26	16	36	28	36	40	36	52	36
24	04	48	16	48	28	48	40	48	52	48
25	05	00	17	00	29	00	41	00	53	00
26	05	12	17	12	29	12	41	12	53	12
27	05	24	17	24	29	24	41	24	53	24
28	05	36	17	37	29	36	41	36	53	36
29	05	48	17	48	29	48	41	48	53	48
30	06	00	18	00	30	00	42	00	54	00

The second Table,

OR

A Table of Logarithmes, for the finding of the part proportional in all Sexagenary Tables, by help of the Supplemental Table in the first leaf thereof, serving as well for Time, as Motion.

	0		1		2		3		4	
S.	M.	S.	M.	S.	M.	S.	M.	S.	M.	S.
0	00	00	12	00	24	00	36	00	48	00
1	00	12	12	12	24	12	36	12	48	12
2	00	24	12	24	24	24	36	24	48	24
3	00	36	12	36	24	36	36	36	48	36
4	00	48	12	48	24	48	36	48	48	48
5	01	00	13	00	25	00	37	00	49	00
6	01	12	13	12	25	12	37	12	49	12
7	01	24	13	24	25	24	37	24	49	24
8	01	36	13	36	25	36	37	36	49	36
9	01	48	13	48	25	48	37	48	49	48
10	02	00	14	00	26	00	38	00	50	00
11	02	12	14	12	26	12	38	12	50	12
12	02	24	14	24	26	24	38	24	50	24
13	02	36	14	36	26	36	38	36	50	36
14	02	48	14	48	26	48	38	48	50	48
15	03	00	15	00	27	00	39	00	51	00
16	03	12	15	12	27	12	39	12	51	12
17	03	24	15	24	27	24	39	24	51	24
18	03	36	15	36	27	36	39	36	51	36
19	03	48	15	48	27	48	39	48	51	48
20	04	00	16	00	28	00	40	00	52	00
21	04	12	16	12	28	12	40	12	52	12
22	04	24	16	24	28	24	40	24	52	24
23	04	36	16	36	28	36	40	36	52	36
24	04	48	16	48	28	48	40	48	52	48
25	05	00	17	00	29	00	41	00	53	00
26	05	12	17	12	29	12	41	12	53	12
27	05	24	17	24	29	24	41	24	53	24
28	05	36	17	36	29	36	41	36	53	36
29	05	48	17	48	29	48	41	48	53	48
30	06	00	18	00	30	00	42	00	54	00

M.	0		1		2		3		4	
S.	M.	S.	M.	S.	M.	S.	M.	S.	M.	S.
30	06	00	18	00	30	00	42	00	54	00
31	06	12	18	12	30	12	42	12	54	12
32	06	24	18	24	30	24	42	24	54	24
33	06	36	18	36	30	36	42	36	54	36
34	06	48	18	48	30	48	42	48	54	48
35	07	00	19	00	31	00	43	00	55	00
36	07	12	19	12	31	12	43	12	55	12
37	07	24	19	24	31	24	43	24	55	24
38	07	36	19	36	31	36	43	36	55	36
39	07	48	19	48	31	48	43	48	55	48
40	08	00	20	00	32	00	44	00	56	00
41	08	12	20	12	32	12	44	12	56	12
42	08	24	20	24	32	24	44	24	56	24
43	08	36	20	36	32	36	44	36	56	36
44	08	48	20	48	32	48	44	48	56	48
45	09	00	21	00	33	00	45	00	57	00
46	09	12	21	12	33	12	45	12	57	12
47	09	24	21	24	33	24	45	24	57	24
48	09	36	21	36	33	36	45	36	57	36
49	09	48	21	48	33	48	45	48	57	48
50	10	00	22	00	34	00	46	00	58	00
51	10	12	22	12	34	12	46	12	58	12
52	10	24	22	24	34	24	46	24	58	24
53	10	36	22	36	34	36	46	36	58	36
54	10	48	22	48	34	48	46	48	58	48
55	11	00	23	00	35	00	47	00	59	00
56	11	12	23	12	35	12	47	12	59	12
57	11	24	23	24	35	24	47	24	59	24
58	11	36	23	36	35	36	47	36	59	36
59	11	48	23	48	35	48	47	48	59	48
60	12	00	24	00	36	00	48	00	60	00

M.	0	1	2	3	4
S.	Logarith	Logarith	Logarith	Logarith	Logarith
0	∞,000000	8,221848	8,522878	8,698970	8,823908
1	6,443697	8,229026	8,526482	8,701366	8,825714
2	6,744727	8,236088	8,530056	8,703768	8,827512
3	6,920818	8,243037	8,533602	8,706148	8,829313
4	7,045757	8,249877	8,537118	8,708515	8,831086
5	7,142667	8,256610	8,540607	8,710869	8,832863
6	7,221848	8,263240	8,544067	8,713210	8,834632
7	7,288795	8,269771	8,547500	8,715539	8,836394
8	7,346787	8,276205	8,550906	8,717855	8,838149
9	7,397939	8,282546	8,554286	8,720159	8,839796
10	7,443697	8,288795	8,557640	8,722441	8,841737
11	7,485089	8,294955	8,560968	8,724730	8.843371
12	7,522878	8,301029	8,564270	8,726998	8,845098
13	7,557640	8,307019	8,567548	8,729254	8,846818
14	7,589825	8,312928	8,570801	8,731499	8,848531
15	7,619788	8,318758	8,574030	8,733732	8,850237
16	7,647817	8,324510	8,577235	8,735953	8,851936
17	7,674145	8,330187	8,580417	8 738163	8,853630
18	7,698969	8,335791	8,583576	8,740362	8,855316
19	7,722450	8,341324	8,586711	8,742540	8,856996
20	7,744727	8,346787	8,589825	8,744726	8,858670
21	7,765916	8,352182	8,590916	8,746893	8,860338
22	7,786119	8,357510	8,595985	8,749048	8.861998
23	7,805424	8,362775	8,599033	8,751193	8,863653
24	7,823908	8,367976	8,602059	8,753327	8,865301
25	7,841637	8,373115	8,605065	8,755451	8,866943
26	7,858670	8,378195	8,608050	8,757564	8,868579
27	7,875060	8,383216	8,611014	8,759667	8,870208
28	7.890855	8,388179	8,613959	8,761760	8,871832
29	7,906095	8.393087	8,616883	8,763843	8,873449
30	7,920818	8,397939	8,619788	8,765916	8,875061

M.	0	1	2	3	4	9
S.	Logarith	Logarith	Logarith	Logarith	Logarith	
30	7,920818	8,397939	8,619788	8,765916	8,875061	
31	7,935058	8,402738	8,622674	8,767979	8,876666	
32	7,948847	8,407484	8,625541	8,770033	8,878266	
33	7,952210	8,412179	8,628388	8,772076	8,879860	
34	7,975175	8,416824	8,631218	8,774111	8,881448	
35	7,987765	8,421420	8,634029	8,776125	8,883030	
36	7,999999	8,425968	8,636822	8,778151	8,884606	
37	8,011898	8,430468	8,639596	8,780156	8,886176	
38	8,023480	8,434923	8,642354	8,782153	8,887742	
39	8,034761	8,439332	8,645094	8,784141	8,889301	
40	8,045757	8,443697	8,647816	8,785924	8,890855	
41	8,056480	8,448018	8,650523	8,788089	8,892403	
42	8,066940	8,452297	8,653212	8,790040	8,893946	
43	8,077165	8,456534	8,655884	8,792002	8,895483	
44	8,087149	8,460730	8,658541	8,793945	8,897015	
45	8,096909	8,464886	8,661181	8,795880	8,898542	
46	8,106454	8,469002	8,663805	8,797805	8,900063	
47	8,115794	8,473080	8,666413	8,799723	8,907579	
48	8,124938	8,477120	8,669000	8,801622	8,906079	
49	8,133893	8,481123	8,671584	8,803532	8,904595	
50	8,142667	8,485089	8,674140	8,805425	8,906095	
51	8,151267	8,489020	8,676793	8,807309	8,907590	
52	8,159700	8,492915	8,679225	8,809185	8,909080	
53	8,167972	8,496775	8,681743	8,811053	8,910565	
54	8,176090	8,500601	8,684240	8,812903	8,912044	
55	8,184059	8,504394	8,686735	8,814765	8,913519	
56	8,191885	8,508155	8,689210	8,816609	8,914989	
57	8,199571	8,511882	8,691670	8,818445	8,916443	
58	8,207125	8,515579	8,694117	8,820274	8,917913	
59	8,214549	8,519243	8,696550	8,822095	8,919368	
60	8,221848	8,522878	8,698970	8,823908	8,920818	

S.	Logarith	Logarith	Logarith	Logarith	Logarith
0	8.920818	8.999999	9.066946	9.124938	9.176090
1	8.922223	9.001204	9.067079	9.125842	9.176894
2	8.923703	9.002405	9.069009	9.126744	9.177696
3	8.925139	9.003603	9.070037	9.127644	9.178496
4	8.926570	9.004798	9.071062	9.128542	9.179295
5	8.927996	9.005989	9.072085	9.129438	9.180093
6	8.929718	9.007078	9.073106	9.130333	9.180889
7	8.930835	9.008263	9.074124	9.131225	9.181684
8	8.932247	9.009544	9.075140	9.132116	9.182477
9	8.933655	9.010723	9.076154	9.133005	9.183269
10	8.935058	9.011898	9.077165	9.133893	9.184059
11	8.936457	9.013070	9.078174	9.134778	9.184848
12	4.937851	9.014239	9.079180	9.135662	9.185636
13	8.939241	9.015405	9.080184	9.136743	9.186422
14	8.940626	9.016568	9.081186	9.137423	9.187206
15	8.942007	9.017728	9.082186	9.138302	9.187989
16	8.943384	9.018874	9.083183	9.139178	9.188771
17	8.944756	9.020038	9.084178	9.140053	9.189552
18	8.946124	9.021188	9.085177	9.140926	9.190331
19	8.947487	9.022336	9.086161	9.141797	9.191108
20	8.948846	9.023480	9.087149	9.142667	9.191885
21	8.950202	9.024621	9.088135	9.143534	9.192659
22	8.951552	9.025760	9.089119	9.144400	9.193433
23	8.952899	9.026895	9.090106	9.145264	9.194205
24	8.954242	9.028028	9.091079	9.146127	9.194976
25	8.955580	9.029157	9.092057	9.146988	9.195745
26	8.956914	9.030284	9.093031	9.147847	9.196513
27	8.958244	9.031407	9.094004	9.148704	9.197280
28	8.959570	9.032528	9.094975	9.149560	9.197945
29	8.960892	9.033646	9.095943	9.150414	9.198809
30	8.962210	9.034761	9.096909	9.151267	9.199571

S.	Logarith	Logarith	Logarith	Logarith	Logarith
30	8.962210	9.034761	9.096909	9.151267	9.199571
31	8.963524	9.035873	9.097873	9.152117	9.200333
32	8.964835	9.036983	9.098835	9.153966	9.201093
33	8.966141	9.038089	9.099795	9.154814	9.201851
34	8.967443	9.039193	9.100752	9.155660	9.202608
35	8.968741	9.040294	9.101708	9.156504	9.203364
36	8.970036	9.041392	9.102667	9.157346	9.204129
37	8.971326	9.042487	9.103613	9.158187	9.204872
38	8.972613	9.043580	9.104562	9.158026	9.205624
39	8.973896	9.044669	9.105509	9.158864	9.206375
40	8.975175	9.045756	9.106454	9.159700	9.207124
41	8.976451	9.046841	9.107397	9.160534	9.207873
42	8.977723	9.047923	9.108338	9.161367	9.208729
43	8.978991	9.049002	9.109277	9.162198	9.209365
44	8.980255	9.050078	9.110214	9.163028	9.210109
45	8.981516	9.051152	9.111149	9.163856	9.210852
46	8.982773	9.052223	9.112082	9.164682	9.211794
47	8.984026	9.053294	9.113013	9.165507	9.212335
48	8.985276	9.054357	9.114942	9.166330	9.213074
49	8.986522	9.055420	9.114869	9.167152	9.213812
50	8.987765	9.056480	9.115794	9.167972	9.214549
51	8.989004	9.057538	9.116717	9.168791	9.215274
52	8.990239	9.058514	9.117638	9.169608	9.216028
53	8.991471	9.059647	9.118558	9.170424	9.216751
54	8.992700	9.060697	9.119475	9.171238	9.217483
55	8.993925	9.061645	9.120390	9.172050	9.218213
56	8.995146	9.062790	9.121303	9.172861	9.218943
57	8.996365	9.063833	9.122215	9.173671	6.219671
58	8.997580	9.064873	9.123124	9.174479	9.220398
59	8.998791	9.065911	9.124032	9.175285	9.221123
60	8.999999	9.066996	9.124938	9.176090	9.221848

S.	Logarith	Logarith	Logarith	Logarith	Logarith
0	9.221848	9.263240	9.301029	9.335791	9.367976
1	9.222571	9.263898	9.301632	9.336348	9.368492
2	9.223293	9.264554	9.302234	9.336903	9.369009
3	9.224014	9.265210	9.302835	9.337458	9.369524
4	9.224733	9.265865	9.303435	9.338013	9.360039
5	9.225452	9.266518	9.304035	9.338566	9.370553
6	9.226169	926 7171	9.304633	9.339119	9.371067
7	9.226885	9.267822	9.305231	9.339671	9.371580
8	9.227600	9.268473	9.305828	9.340223	9.372092
9	9.228314	9.269123	9.306424	9.340774	9.372604
10	9.229026	9.269771	9.307029	9.341324	9.373115
11	9.229738	9.270419	9.307614	9.342873	9.373626
12	9.230448	9.271066	9.308208	9.342422	9.374136
13	9.231157	9.271712	9.308800	9.342970	9.374646
14	9.231865	9.272356	9.309393	9.343517	9.375154
15	9.232572	9.273000	9.309984	9.344064	9.375663
16	9.233277	9.273643	9.310574	9.344610	9.376170
17	9.233982	9.274285	9.311164	9.345155	9.376777
18	9.234685	9.274926	9.311753	9.345699	9.377184
19	9.235387	9.275566	9.312341	9.346243	9.377690
20	9.236088	9.276205	9.312920	9.346786	9.378195
21	9.236788	9.276844	9.313515	9.347329	9.378700
22	9.237487	9.278481	9.314100	9.347871	9.379204
23	9.238185	6.278117	9.314785	9.348412	9.379707
24	9.238881	9.279753	9.315269	9.348953	9.380210
25	9.239577	9.279387	9.315853	9.349492	9.380713
26	9.240271	9.280021	9.316435	9.350032	9.381214
27	9.240964	9.280653	9.317017	9.350570	9.381716
28	9.241656	9.281285	9.317598	9.351108	9.382216
29	9.242347	9.281916	9.318178	9.351645	9.382716
30	9.243037	9.282546	9.318758	9.352182	9.383216

S.	Logarith	Logarith	Logarith	Logarith	Logarith
30	9.243037	9.282546	9.318758	9,352182	9,383216
31	9.243726	9.283175	9.319306	9,352717	9,383715
32	9.244414	9.283803	9.319914	9,353253	9,384213
33	9.245100	9.284430	9.320491	9,353787	9,384711
34	9.245786	9.285056	9.321068	9,354321	9,385208
35	9.246470	9.285681	9.321643	9,354854	9,385705
36	9.247154	9.286306	9.322218	9,355387	9,386201
37	9.247836	9.286929	9.322792	9,355919	9,386696
38	9.248517	9.287552	9.323366	9,356450	9.387191
39	9.249197	9.288174	9.323938	9,356980	9,387685
40	9.249876	9.288795	9,324510	9,357510	9.388179
41	9.250555	9.289415	9,325081	9,358040	9,388672
42	9.251232	9.290034	9,325651	9,358568	9,389165
43	9.251907	9.290652	9,326221	9,359096	9,389657
44	9.252582	9.291269	9,326790	9,359624	9,390149
45	9.253256	9.291886	9,327358	9,360150	9,390640
46	9.253929	9.292501	9,327925	9,360677	9,391130
47	9.254601	9.293116	9,328492	9,361202	9,391620
48	9.255272	9.293730	9,329058	9,361727	9,392109
49	9.255941	9.294343	9,329623	9,362251	9,392598
50	9.256610	9.294955	9,330187	9,362775	9,393087
51	9.257277	9.295566	9,330751	9,363298	9,393574
52	9.257944	9.296176	9,331314	9,363820	9,394061
53	9.258610	9.296786	9,331876	9,364342	9,394548
54	9.259274	9.297395	9,332437	9,364863	9,395034
55	9.259938	9.298003	9,332998	9,365383	9,395520
56	9.260600	9.298610	9,333558	9,365903	9,396005
57	9.261262	9.299216	9,334118	9,366422	9,396489
58	9.261922	9.299821	9,334676	9,366941	9,396973
59	9.262582	9.300425	9,335234	9,367458	9,397456
60	9.263240	9.301029	9,335791	9,367976	9,397939

S.	Logarith	Logarith	Logarith	Logarith	Logarith
0	9.397939	9.425968	9.452297	9.477120	9.500601
1	9.398421	9.426420	9.452722	9.477522	9.500982
2	9.388903	9.426872	9.453147	9.477924	9.501363
3	9.399384	9.427323	9.453572	9.478325	9.501743
4	9.399865	9.427774	9.453996	9.478726	9.502123
5	9.400345	9.428224	9.454420	9.478126	9.502502
6	9.400825	9.428674	9.454844	9.479526	9.502881
7	9.401304	9.429123	9.455267	9.479926	9.503260
8	9.401782	9.429572	9.455690	9.480325	9.503638
9	9.402260	9.430020	9.456112	9.480724	9.504017
10	9.402738	9.430468	9.456534	9.481123	9.504394
11	9.403215	9.430916	9.456955	9.481524	9.504772
12	9.403691	9.431363	9.457376	9.481919	9.505149
13	9.404167	9.431809	9.457897	9.482317	9.505526
14	9.404643	9.432255	9.458217	9.482714	9.505902
15	9.405118	9.432701	9.458637	9.483111	9.506278
16	9.405592	9.433146	9.459056	9.483507	9.506654
17	9.406066	9.433591	9.459475	9.483903	9.507030
18	9.406539	9.434035	9.459894	9.484299	9.507405
19	9.407012	9.434479	9.460312	9.484694	9.507780
20	9.407484	9.434923	9.460730	9.485089	9.508154
21	9.407956	9.435366	9.461147	9.485484	9.508529
22	9.408427	9.435808	9.461564	9.485878	9.508903
23	9.408898	9.436250	9.461981	9.486272	9.509276
24	9.409368	9.436692	9.462397	9.486666	9.509649
25	9.409838	9.437133	9.462813	9.487059	9.510022
26	9.410307	9.437573	9.463228	9.487452	9.510395
27	9.410776	9.438014	9.463643	9.487844	9.510767
28	9.411244	9.438453	9.464058	9.488236	9.511139
29	9.411712	9.438893	9.464472	9.488628	9.511511
30	9.412179	9.439332	9.464886	9.489019	9.511882

S.	Logarith	Logarith	Logarith	Logarith	Logarith
30	9,412179	9,439332	9.464886	9,489019	9,511882
31	9,412646	9,439770	9.465299	9,489411	9,512253
32	9,413112	9,440208	9.465712	9,489801	9,512624
33	9,413578	9,440646	9.466125	9,490192	9,512995
34	9,414043	9,441083	9.466537	9,490582	9,513365
35	9,414508	9,441520	9.466949	9,490971	9,513734
36	9,414972	9,441956	9.467360	9,491361	9,514104
37	9,415436	9,442392	9.467771	9,491750	9,514473
38	9,415899	9,442827	9.468182	9,492138	9,514942
39	9,416362	9,443262	9.468592	9,492527	9,515210
40	9,416824	9,443697	9.468992	9,492915	9,515579
41	9,417286	9,444131	9.469412	9,493302	9'515946
42	9,417747	9,444564	9.469821	9,493686	9,516314
43	9,418208	9,444997	9.470230	9,494076	9,516681
44	9,418668	9.445430	9.470638	9,494463	9,517048
45	9,419128	9.445863	9.471046	9,494849	9,517415
46	9,419588	9.446294	9.471454	9,495235	9,517781
47	9,420046	9.446726	9.471861	9,495620	9,518147
48	9,420505	9.447157	9.472268	9,496006	9,518513
49	9,420963	9.447588	6,472674	9,496390	9,518878
50	9,421420	9.448018	9,473080	9,496775	9,519243
51	9,421877	9.448448	9,473486	9,497159	9,519608
52	9,422333	9.448877	9,473891	9,497543	9,519973
53	9,422789	9.449306	9.474296	9,497926	9,520337
54	9,423245	9.449734	9,474701	9,498310	9,520701
55	9,423700	9.450163	9,475105	9,498692	9,521064
56	9,424154	9.450590	9,475509	9,499075	9,521428
57	9,424608	9.451017	9,475912	9,499457	9,521791
58	9,425062	9.451447	9.476315	9,499839	9,522153
59	9,425505	9.451871	9.476718	,500220	9,522516
60	9,425968	9.452297	9.477120	,500601	9.522878

S.	Logarith	Logarith	Logarith	Logarith	Logarith
0	9,522878	9,544067	9,564270	9,583570	9.602059
1	9,523240	9,544412	9,564599	9,583890	9.602350
2	9,523601	9,544756	9,564928	9,584205	9.602662
3	9,523962	9,545100	9,565256	9,584519	9.602963
4	9,524323	9,545444	9,565584	9,584833	9.603264
5	9,524684	9,545787	9,565912	9,585146	9.603564
6	9,525044	9,546130	9,566240	9,585460	9.603865
7	9,525404	9,546473	9,566567	9,585773	9.604165
8	9,525763	9,546816	9,566895	9,586086	9.604465
9	9,526123	9,547158	9,567221	9,586399	9.604765
10	9,526482	9,547500	9,567548	9,586711	9.605065
11	9,526841	9,547842	9,567875	9,587024	9.605364
12	9,527199	9,548184	9,568201	9,587336	9.605663
13	9,527557	9,548525	9,568527	9,587648	9.605962
14	9,527915	9,548866	9,568852	9,587959	9.606261
15	9.528273	9,549207	9,569178	9,588271	9.606559
16	9,528630	9,549547	9,569503	9,588582	9.606858
17	9,528987	9,549887	9,569828	6,588893	9.607156
18	9,529344	9,550227	9,570153	9,589204	9.607454
19	9,529700	9,550567	9,570477	9,589514	9.607752
20	9,530056	9,550906	9,570801	9,589825	9.608049
21	9,530412	9,551246	9,571125	9,590135	9.608347
22	9,530768	9,551585	9,571449	9,590445	9.608644
23	9,531123	9,551923	9,571773	9,590754	9.608941
24	9,531478	9,552262	9,572096	9,591064	9.609238
25	9,531833	9,552600	9,572419	9,591373	9.609534
26	9,532187	9,552937	9,572742	9,591682	9.609830
27	9,532541	9,553275	9,573064	9,591991	9.610127
28	9,532895	9,553612	9,573386	9,592299	9.610423
29	9,533248	9,553949	9,573708	9,592607	9.610718
30	9,533602	9,554286	9,574030	9,592916	9.611014

S.	Logarith	Logarith	Logarith	Logarith	Logarith
30	9.533602	9.554286	9.574030	9,592916	9,611014
31	9.533955	9.554623	9.574352	9,593224	9,611309
32	9.534307	9.554959	9.574673	9,593531	9,611604
33	9.534660	9.555295	9.574994	9,593839	9,611899
34	9.535012	9.555631	9.575315	9,594146	9,612194
35	9.535363	9.555966	9.575636	9,594453	9,612489
36	9.535715	9.556302	9.575956	9,594760	9,612783
37	9.536066	9.556636	9,576276	9,595066	9,613077
38	9.536417	9.556971	9,576596	9,595373	9,613371
39	9.536768	9.557306	9,576916	9,595679	9,613665
40	9.537118	9.557640	9,577235	9,595985	9,613958
41	9.537468	9.557974	9,577555	9,596291	9,614252
42	9.537818	9.558307	9,577874	9,596596	9.614545
43	9.538168	9.558641	9,578192	9,596901	9,614838
44	9.538517	9.558974	9,578511	9,597206	9,615130
45	9.538866	9.559307	9,578829	9,597511	9,615423
46	9.539215	9.559640	9,579147	9,597816	9,615715
47	9.539563	9.559972	9,579465	9,598120	9,616007
48	9.539911	9.560304	9,579783	9,598425	9,616299
49	9.540259	9.560636	9,580100	9,598729	9,616591
50	9.540607	9.560968	9,580417	9,599033	9,616883
51	9.540954	9.561299	9,580734	9,599336	9,617174
52	9.541301	9.561630	9,581051	9,599640	9,617465
53	9.541648	9.561961	9,581367	9 599943	9,617756
54	9.541994	9.562292	9,581683	9,600246	9.618047
55	9.542340	9.562622	9.581999	9,600548	9,618338
56	9 542686	9.562952	9,582315	9,600851	9,618628
57	9.543032	9.563280	9,582630	9,601153	9,618918
58	9.543377	9.563612	9,582946	9,601455	9,619208
59	9.543722	9.563941	9,583261	9,601757	9.619598
60	9.544067	9.564270	9,583576	9,602059	9,619788

S.	Logarith	Logarith	Logarith	Logarith	Logarith
0	9.619788	9.636821	9.653212	9.669000	9.684246
1	9.620077	5.637099	9.653480	9.669264	9.684495
2	9.620366	9.637378	9.653747	9.669522	9.684745
3	9.620655	9.637655	9.654015	9.669781	9.684994
4	9.620944	9.637933	9.654283	9.670039	9.685243
5	9.621233	9.638211	9.654550	9.670296	9.685492
6	9.621521	9.638488	9.654817	9.670554	9.685741
7	9.621810	9.638758	9.655084	9.670812	9.685989
8	9.622198	9.639043	9.655351	9.671069	9.686238
9	9.622386	9.639319	9.655618	9.671326	9.686486
10	9.622673	9.639596	9.655884	9.671583	9.686735
11	9.622961	9.639873	9.656150	9.671840	9.686983
12	9.623248	9.640149	9.656417	9.672197	9.687231
13	9.623535	9.640425	9.656683	9.672353	9.687478
14	9.623822	9.640701	9.656949	9.672610	9.687726
15	9.624109	9.640977	9.657214	9.672866	9.687974
16	9.624396	9.641253	9.657480	9.673122	9.688221
17	9.624682	9.641528	9.657745	9.673378	9.688468
18	9.624968	9.641803	9.658010	9.673634	9.688715
19	9.625254	9.642079	9.658275	9.673890	9.688962
20	9.625540	9.642354	9.658540	9.674145	9.689209
21	9.625826	9.642628	9.658805	9.674401	9.689456
22	9.626111	9.642903	9.655070	9.674656	9.689702
23	9.626396	9.643177	9.659334	9.674911	9.689949
24	9.626681	9.643452	9.659598	9.675166	9.690195
25	9.626966	9.643726	9.659862	9.675421	9.690441
26	9.627251	9.644000	9.660126	9.675676	9.690687
27	9.627536	9.644273	9.660390	9.675930	9.690933
28	9.627820	9.644547	9.660654	9.676184	9.691179
29	9.628104	9.644820	9.660917	9.676439	9.691424
30	9.628388	9.645094	9.661180	9.676693	9.691670

S.	Logarith	Logarith	Logarith	Logarith	Logarith
30	9.628388	9.645094	9.661180	9.676693	9.691670
41	9.628672	9.645367	9.661444	9.676947	9.691915
32	9.628955	9.645640	9.661707	9.677200	9.692160
33	9.629249	9.645912	9.661969	9.677454	9.692405
34	9.629522	9.646185	9.662232	9.677707	9.692650
35	9.629805	9.646457	9.662494	9.677961	9.692895
36	9.630088	9.646729	9.662757	9.678214	9.693139
37	9.630370	9.647001	9.663019	9.678467	9.693384
38	9.630653	9.647273	9.663281	9.678720	9.693628
39	9.630935	9.647545	9.663543	9.678972	9.693872
40	9.631217	9.647816	9.663805	9.679225	9.694117
41	9.631499	9.648088	9.664066	9.679477	9.694360
42	9.631781	9.648359	9.664328	9.679730	9.694604
43	9.632062	9.648630	9.664589	9.679982	9.694848
44	9.632344	9.648901	9.664850	9.680234	9.695091
45	9.632625	9.649172	9.665111	9.680486	9.695335
46	9.632906	9.649442	9.665371	9.680737	9.695578
47	6.633187	9.649712	9.665632	9.680989	9.695821
48	9.633467	9.649983	9.665893	9.681240	9.696064
49	9.633748	9.650253	9.666153	9.681491	9.696307
50	9.634028	9.650522	9.666413	9.681743	9.696550
51	9.634308	9.650792	9.666673	9.681994	9.696792
52	9.634588	9.651062	9.666933	9.682244	9.697035
53	9.634868	9.651331	9.667192	9.682495	9.697277
54	9.635148	9.651600	9.667452	9.682746	9.697519
55	9.635427	9.951869	9.667711	9.682996	9.697761
56	9.635706	9.652138	9.667971	9.683246	9.698003
57	9.635985	9.652407	9.668230	9.783496	9.698245
58	9.636264	9.652675	9.668488	9.683746	9.698486
59	9.636543	9.652943	9.668747	9.683996	9.698728
60	9.636821	9.653212	9.669006	9.684246	9.698969

S.	Logarith	Logarith	Logarith	Logarith	Logarith
0	9.698969	9.713209	9.726998	9.740362	9,753327
1	9.699210	9.713443	9.727234	9.740581	9,753540
2	9.699451	9.713676	9.727450	9.740800	9,753752
3	9.699692	9.713909	9.727676	9.741019	9,753965
4	9.699933	9.714142	9.727902	9.741238	9,754177
5	9.700174	9.714375	9.728127	9.741457	9,754390
6	9.700414	9.714608	9.728353	9.741676	9,754602
7	9.700655	9.714841	9.728578	9.741894	9,754814
8	9.700895	9.715073	9.728804	9.742113	9,755026
9	9.701135	9.715306	9.729029	9,742331	9,755238
10	9.701375	9.715538	9.729254	9.742550	9,755450
11	9.701615	9.715770	9.729479	9.742768	9,755662
12	9.701855	9.716002	9.729704	9.742986	9,755874
13	9.702094	9.716234	9.729928	9.743204	9,756085
14	9.702334	9.716466	9.730153	9.743422	9,756297
15	9.702573	9.716698	9.730377	9.743639	9,756508
16	9.702812	9.716929	9.730602	9.743857	9,756720
17	9.703051	9.717161	9.730826	9.744075	9,756931
18	9.703290	9.717392	9.731050	9.744292	9,757142
19	9.703529	9.717623	9.731274	9,744500	9,757353
20	9.703768	9.717854	9.731598	9,644726	9.757564
21	9.704006	9.718085	9.731722	9,744944	9,757774
22	9.704245	9.718316	9.731946	9,745161	9,757985
23	9,704483	9.718547	9.732169	9,745377	9,758196
24	9.704721	9.718777	9.732393	9,745594	9,758406
25	9.704959	9.719008	9.732616	9,745811	9,758617
26	9.705197	9.719238	9.732839	9,746027	9,758827
27	9.705435	9.719468	9.733062	9,746244	9,759037
28	9.705673	9.719698	9.733285	9,746460	9,759247
29	9.705910	9.719928	9.733508	9,746676	9,759457
30	9.706148	9.720158	9.733731	9,746893	9,759667

S.	Logarith	Logarith	Logarith	Logarith	Logarith
30	9,706148	9,720158	9,733731	9.746893	9.759667
31	9,706385	9,720388	9,733954	9.747109	9.759877
32	9,706622	9,720618	9,734176	9.747324	9.760086
33	9,706859	9,720847	9,734399	9.747540	9.760296
34	9,707096	9,721076	9,734621	9.747756	9.760505
35	9,707333	9,721306	9,734843	9.747972	9.760715
36	9,707569	9,721535	9,735065	9.748187	9.760924
37	9,707806	9,711764	9,735287	9.748402	9.761133
38	9,708042	9,721993	9,735509	9.748618	9.761342
39	9,708278	9,722221	9.735731	9.748833	9.761551
40	9,708514	9,722450	9.735953	9.749048	9.761760
41	9,708750	9.722679	9.736174	9.749263	9.761969
42	9,708986	9,722907	9.736396	9.749478	9.762177
43	9,709222	9,723135	9.736617	9.749692	9.762386
44	9,709457	9.723363	9.736838	9.749907	9.762594
45	9,709693	9,733591	9.737059	9.750122	9.762803
46	9,709928	9,723819	9.737280	9.750332	9.763011
47	9,710166	9,724047	9.737501	9.750550	9.763219
48	9,710398	9,724225	9.737722	9.750764	9.763427
49	9,710633	9,724502	9.737942	9.750979	9.763635
50	9,710868	9,724730	9.738163	9.751193	9.763843
51	9,711103	9,724957	9.738383	9.751406	9.764041
52	9,711337	9,725184	9.738603	9.751620	9.764258
53	9,711572	9.725401	9.738824	9.751834	9.764466
54	9,711806	9,725638	9.739044	9.752047	9.764673
55	9,712040	9,725865	9.739264	9.752261	9.764884
56	9,712274	9,726092	9.739483	9.752474	9.765088
57	9,712508	9,726319	9.739703	9.752688	9.765295
58	9,712742	9,726545	9.739923	9.752901	9.765502
58	9,712976	9,726771	9.740142	9.753114	9.765709
60	9.713209	9,726998	9.740362	9.753327	9.765916

S.	Logarith	Logarith	Logarith	Logarith	Logarith
0	9.765916	9.778150	9.790049	9.801631	9.812912
1	9.766123	9.778351	9.790237	9.801822	9.813098
2	9.766329	9.778552	9.790441	9.802012	9.813283
3	9.766536	9.778753	9.790636	9.802202	9.813469
4	9.766742	9.778954	9.790831	9.802393	9.813654
5	9.766949	9.779154	9.791027	9.802543	9.813839
6	9.767155	9.779355	9.791222	9.802773	9.814025
7	9.767361	9.779555	9.791417	9.802963	9.814210
8	9.767567	9.779766	9.791612	9.803153	9.814395
9	9.767773	9.779956	9.791807	9.803342	9.814580
10	9.767979	9.780156	9.792001	9.803531	9.814764
11	9.768185	9.780356	9.792196	9.803722	9.814949
12	9.768390	9.780556	9.792391	9.803911	9.815134
13	9.768596	9.780756	9.792585	9.804101	9.815318
14	9.768801	9.780956	9.792780	9.804290	9.815503
15	9.769007	9.781156	9.792974	5.804479	9.815687
16	9.769212	9.781355	9.793163	9.804668	9.816872
17	9.769417	9.781555	9.793362	9.804857	9.816056
18	9.769622	9.781754	9.793557	9.865047	9.816240
19	9.769827	9.781954	9.793751	9.805235	9.816424
20	9.770032	9.782153	9.793945	9.805424	9.816609
21	9.770237	9.782352	9.794138	9.805613	9.816792
22	9.770442	9.782551	9.794332	9.805802	9.816976
23	9.770646	9.782750	5.794526	9.805990	9.817206
24	9.770851	9.782949	9.794719	9.806189	9.817334
25	9.771055	9.783148	9.794913	9.806367	9.817528
26	9.771260	9.783347	9.795166	9.806556	9.817711
27	9.771464	9.783545	9.795300	9.806744	9.817895
28	9.771668	9.783744	9.795493	9.806932	9.818078
29	9.771872	9.783942	9.795686	9.807120	9.818262
30	9.772076	9.784141	9.795879	9.807308	9.818445

S.	Logarith	Logarith	Logarith	Logarith	Logarith
30	9.772076	9.784141	9.795879	9.807308	9.818445
31	9.772280	9.784339	9.796072	9.807496	9.818628
32	9.772484	9.784537	9.796265	9.807684	9.818811
33	9.772687	9.784735	9.796458	9.807872	9.818994
34	9.772891	9.784933	9.796650	9.808060	9.819177
35	9.773094	9.785131	9.796843	9.808247	9.819360
36	9.773298	9.785329	9.797036	9.808435	9.819543
37	9.773501	9.785527	9.797228	9.808623	9.819726
38	9.773704	9.785724	9.797420	9.808810	9.819908
39	9.777907	9.785922	9.797613	9.808997	9.820091
40	9.774110	9.786119	9.797805	9.809184	9.820273
41	9.774313	9.786317	9.797997	9.809372	9.820456
42	9.774516	9.786514	9.798189	9.809559	9.820638
43	9.774719	9.786711	9.798381	9.809746	9.820821
44	9.774921	9.786908	9.798573	9.805933	9.821003
45	9.775124	9.787150	9.798765	9.810119	9.821185
46	9.775326	9.787302	9.798956	9.810306	9.821367
47	9.775529	9.787499	9.799148	9.810493	9.821549
48	9.775731	9.787696	9.799340	9.810679	9.821731
49	9.775933	9.787892	9.799531	9.810866	9.821913
50	9.776135	9.788089	9.799722	9.811052	9.822094
51	9.776337	9.788285	9.799914	9.811239	9.822276
52	9.776539	9.788482	9.800105	9.811425	9.822458
53	9.776741	9.788678	9.800296	9.811611	9.822639
54	9.776942	9.788874	9.800487	9.811797	9.822821
55	9.777144	9.789070	9.800678	9.811983	9.823002
56	9.777345	9.789266	9.800869	9.812169	9.823183
57	9.777547	9.789462	9.801060	9.812355	9.823365
58	9.777748	9.789658	9.801250	9.812541	9.823546
59	9.777949	9.789854	9.801441	9.812727	9.823727
60	9.778150	9.790049	9.801631	9.812912	9.823908

S.	Logarith	Logarith	Logarith	Logarith	Logarith
0	9.823908	9.834632	9,845097	9,855316	9.865300
1	9.824089	9,834808	9,845269	9,855485	9.865465
2	9.824270	9.834985	9,845442	9,855653	9.865629
3	9.824450	9.835161	9,845614	9.855821	9.865794
4	9.824631	9.835337	9,845786	9,855989	9.865958
5	9.824812	9.835513	9,845958	9,856157	9.866122
6	9.824992	9.835690	9.846130	9,856325	9.866286
7	9.825173	9.835866	9,846302	9,856493	9.866450
8	9.825353	9.836042	9,846474	9,856661	9.866614
9	9.825533	9.836218	9,846645	9,856829	9.866778
10	9.825714	9.836393	9,846817	9,856996	9.866942
11	9.825894	9.836569	9.846989	9,857164	9.867106
12	9.826074	9,836745	9,847100	9.857331	9.867270
13	9.826254	9,836921	9,847332	9,857499	9.867434
14	9.826434	9.837096	9,847504	9,857666	9.867597
15	9.826614	9.837272	9,847674	9,857834	9.867761
16	9.826793	9,837447	9,847846	9,858001	9.867925
17	9.826973	9.837623	9,848017	9.858168	9.868088
18	9.827153	9.837798	9,848188	9,858336	9.868251
19	9.827332	9.837973	9,848359	9.858503	9.868415
20	9.827512	9.838148	9,848530	9,858670	9.868578
21	9.827691	9.838323	9,843701	9,858837	9.868741
22	9.827871	9.838498	9,848872	9.859004	9.868905
23	9.828050	9.838673	9,849043	9,859171	9.869068
24	9.828229	9.838848	9,849213	9,859337	9.869231
25	9,828408	9,839023	9,849384	9,859504	9.869394
26	9.828587	9,839198	9,849555	9,859671	9.869557
27	9.828766	9,839372	9,849725	9.859838	9.869720
28	9 828935	9.839547	9,849896	9,860004	9.869882
29	9.829124	9,839721	9,850066	9,860171	9.870045
30	9 829303	9,839896	9,850237	9,860337	9.870208

S.	Logarith	Logarith	Logarith	Logarith	Logarith
30	9.829303	9.839896	9.850237	9.860337	9.870208
31	9.829481	9.840070	9.850407	9.860503	9,870370
32	9.829660	9.840245	9.850577	9.860670	9.870533
33	9.829839	9.840419	9.850747	9.860836	9.870695
34	9.830017	9.840593	9.850917	9.861002	9.870858
35	9.830195	9.840767	9.851087	9.861168	9.871020
36	9.830374	9.840941	9.851257	9.861334	9.871183
37	9.830552	9.841115	9.851427	9.861500	9.871345
38	9.830730	9.841289	9.851597	9.861666	9.871507
39	9.830908	9.841463	9.851767	9.861832	9.871669
40	9.831086	9 841637	9.851936	9.861998	9.871831
41	9.831264	9.841810	9.852106	9.862164	9.871993
42	9.831442	9.841984	9.852276	9.862329	9.872155
43	9.831620	9.842157	9.852445	9.862495	9.872317
44	9.831790	9.842331	9.852615	9.862660	0.872479
45	9.831975	9.842504	9.852784	9.862826	9.872641
46	9.832153	9.842678	9.852953	9.862991	9.872803
47	9.832330	9.842851	9.853122	9.863157	9.872964
48	9.832508	9.843024	9.853292	9.863322	9.873126
49	9.832685	9.843197	9.853461	9.863487	9.873287
50	9.832863	9.843370	9.853630	9.863652	9.873449
51	9.833040	9.843543	9.853899	9.863817	9.873610
52	9.833217	9.843716	9.853967	9.863982	9.873772
53	9.833394	9.843889	9.854136	9.864147	9.873933
54	9.833571	9.844062	9.854305	9.864312	9.874094
55	9.833748	9.844234	9.854474	9.864477	9.874255
56	9.833925	9.844407	9.854642	9.864642	9.874416
57	9.834102	9.844580	9.854811	9.864807	9.874577
58	9.834278	9.844752	9.854979	9.864971	9.874738
59	9.834455	9.844925	9.855148	9.865136	9.874899
60	9.834632	9.845097	9.855316	9.865300	9.875060

S.	Logarith	Logarith	Logarith	Logarith	Logarith
0	9.875060	9.884606	9.893946	9.903089	9,912044
1	9.875221	9.884763	9.894100	9.903240	9,912192
2	9.875382	9.884920	9.894254	9.903390	9,912339
3	9.875543	9.885077	9.894407	9.903541	9,912487
4	9.875703	9.885235	9.894561	9.603692	9,912634
5	9.875864	9.885392	9.894715	9.903842	9,912782
6	9.876024	9.885549	9.894869	9.903993	9,912929
7	9.876185	9.885706	9.895022	9,904143	9,913077
8	9.876345	9.885863	9.895176	9.904294	9,913224
9	9.876506	9.886019	9.895329	9.904444	9,913371
10	9.876666	9.886176	9.895483	9.904594	9,913519
11	9.876826	9.886333	9.895636	9.904745	9,913666
12	9.876986	9.886490	9.895790	9.904895	9,913813
13	9.877146	9.886646	9.895943	9.905045	9,913960
14	9.877306	9.886803	9.896096	9.905195	9,914107
15	9.877466	9.886959	9.896250	9.905345	9,914254
16	9.877626	9.887116	9.896403	9.905495	9,914401
17	9.877786	9.887272	9.896556	9.905645	9,914548
18	9.877946	9.887429	9.896709	9.905795	9,914695
19	9.878106	9.887585	9.896862	9.905945	9,914841
20	9.878265	9.887741	9.897015	9.906094	9,914988
21	9.878425	9.887897	9.897168	9.906244	9,915135
22	9.878585	9.888054	9.897321	9.906394	9,915282
23	9.878744	9.888210	9.897473	9.906544	9,915428
24	9.878904	9.888366	9.897626	9.906693	9,915575
25	9.879063	9.888522	9.897779	9.906843	9,915721
26	9.879222	9.888678	9.897931	9.906992	9,915868
27	9.879382	9.888833	9.898084	9.907142	9,916014
28	9.879541	9.888989	9.898236	9.907291	9,916160
29	9.879700	9.889145	9.898389	9.907440	9,916307
30	9.879859	9.889301	9.898541	9.907589	9,616453

S.	Logarith	Logarith	Logarith	Logarith	Logarith
30	9.879859	9.889301	9,898541	9,907589	9.916453
31	9.880018	9.889456	9,898694	9,907739	9.916599
32	9.880177	9,889612	9,898846	9,907888	9.916745
33	9,880336	9,889767	9,898998	9,908037	9.916891
34	9,880495	9.889923	9,899150	9,908186	9.917037
35	9.880654	9,890078	9,899303	9,908335	9.917183
36	9.880813	9.890234	9,899455	9,908484	9.917329
37	9.880971	9,890389	9.899607	9,908633	9.917475
38	9.881130	9,890544	9,899759	9.908782	9.917621
39	9.881289	9,890699	9,899911	9,908931	9.917767
40	9.881447	9,890855	9,900063	9,909079	9.917913
41	9.881606	9,891010	9,900214	9,909228	9.918058
42	9.881764	9,891165	9,900366	9,909377	9,918204
43	9.881922	9,891320	9,900518	9,909525	9.918350
44	9.882081	9,891475	9,900670	9,909674	9.918495
45	9.882239	9,891629	9.900821	9,909822	9.918641
46	9,882497	9,891784	9,900973	9,909971	9.918786
47	9,882555	9,891939	9,901124	9,910119	9.918932
48	9.882713	9,892094	9.901276	9.910268	9.919077
49	9,882871	9,892248	9.901427	9,910416	9.919222
50	9,883029	9.892403	9,901578	9,910564	9.919368
51	9,883187	9,892557	9,901730	9.910712	9.919513
52	9.883345	9,892712	9.901881	9.910860	9.919658
53	9.883503	9,892866	9,902032	9,911009	9.919803
54	9,883660	9.893021	9,902183	9.911157	9.919948
55	9,883818	9,893175	9.902334	9,911305	9.920093
56	9,883976	9,893329	9,902485	9.911453	9.920238
57	9.884133	9,893483	9,902636	9.911600	9.920383
58	9,884291	9.893637	9,902787	9.911748	9.920528
59	9.884448	9,893792	9,902938	9.911896	9.920673
60	9.884606	9.893946	9,903089	9.912040	9.920818

S.	Logarith	Logarith	Logarith	Logarith	Logarith
0	9,920818	9.929418	9,937851	9,946124	9,954242
1	9.920962	9.929560	9,937990	9,946260	9,954376
2	9,921107	9,929702	9,938129	9,946397	9,954510
3	9,921252	9.929843	9,938268	9,946533	9,954643
4	9.921396	9.929985	9,938408	9,946670	9,954777
5	9,921541	9,930127	9,938547	9,946806	9,954911
6	9.921685	9,930269	9,938685	9,946942	9,955045
7	9.921830	9,930410	9,938824	9,947079	9.955179
8	9.921974	9.930552	9,938963	9,947215	9,955313
9	9,922119	9 930693	9,939102	9,947351	9.955446
10	9,922263	9,930835	9,939241	9,947487	9.955580
11	9.922407	9,930976	9,939380	9.947623	9.955713
12	9.922551	9,931118	9,939518	9.947759	9,955847
13	9,922696	9,931259	9,939657	9.947895	9.955981
14	9.922840	9.931400	9,939795	9.948031	9.956114
15	9,922984	9,931542	9,939934	9.948167	9.956247
16	9,923128	9,931683	9,940073	9.948303	9.956381
17	9.923272	9,931824	9,940211	9.948439	9.956514
18	9.923416	9,931965	9,940349	9.948575	9.956648
19	9.923560	9.932106	9,940488	9.948711	9.956781
20	9.923703	9,932247	9,940626	9.948846	9.956914
21	9.923847	9,932388	9,940764	9.948982	9.957047
22	9,923991	9,932529	9,940903	9.949118	9.957180
23	9,924135	9,932670	9,941041	9.949253	9.957314
24	9,924278	9,932811	9,941179	9.949389	9.957447
25	9.924422	9,932952	9,941317	9.949525	9.957580
26	9.924565	9,933092	9,941455	9.949660	9,957713
27	9.924709	9,933233	9,941593	9.949795	9.957846
28	9,924852	9.933374	9,941731	9.949931	9.957979
29	9.924996	9,933514	9,941869	9.950066	9.958111
30	9.925139	9.933655	9,942007	9.950202	9.958244

S.	Logarith	Logarith	Logarith	Logarith	Logarith
30	9.925139	9,933655	9.942007	9.950202	9.958244
31	9.925282	9.933796	9,942145	9.950337	9.958377
32	9,925426	9.933936	9.942283	9.950472	9,958510
33	9,925569	9.934076	9.942420	9.950607	9.958643
34	9,925712	9.934217	9,942558	9.950742	9.958775
35	9,925855	9.934357	9.942696	9.950877	9.958908
36	9,925998	9,934497	9.942833	9.951013	9.959030
37	9,926141	9,934638	9.942971	9.951148	9,959173
38	9.926284	9.934778	9.943109	9.951283	9.959305
39	9,926427	9.934918	9.943246	9.951417	9,959438
40	9.926570	9.935058	9.943384	9.951552	9.959570
41	9,926713	9.935198	9.943521	9,951687	9.959703
42	9.926856	9,935338	9.943658	9.951822	9,959835
43	9.926998	9,935478	9.943796	9.951957	9.959967
44	9,927141	9.935618	9.943933	9.952092	9.960100
45	9.927284	9.935758	9.944070	9.952226	9.960232
46	9.927426	9.935898	9,944207	9,952361	9.960364
47	9.927569	9,936038	9.944345	9.952495	9.960496
48	9,927711	9.936178	9.944482	9.952630	9,960628
49	9,927854	9.936317	9.944619	9,952765	9.960760
50	9.927996	9.936457	9.944756	9.952899	9 960892
51	9,928139	9.936597	9,944893	9.953033	9.961024
52	9.928281	9,936736	9,945030	9.953168	9.961156
53	9.928423	9,936876	9,945167	9.953302	9,961288
54	9.928566	9.937015	9.945303	9.953437	9.961420
55	9.928708	9.937155	9.94544°	9,953571	9.961552
56	9.928850	9.937294	9.945577	9.953705	9,961684
57	9.928992	9.937433	9.945714	9.953836	9,961815
58	9.929134	9.93757:	9.94585C	9 953973	9.961947
59	9.929276	9.93771:	9.945987	9,954107	9.962079
60	9.929418	9.937851	9.946124	9.954242	9.962210

S.	Logarith	Logarith	Logarith	Logarith	Logarith
0	9.962210	9,970036	9,977723	9.985276	9.992700
1	9.962342	9,970165	9,977850	9.985401	9,992822
2	9.962474	9,970294	9,977977	9.985525	9.992945
3	9.962605	9,970423	9,978103	9.985650	9.993068
4	9.962737	9,970552	9,978230	9.985775	9.993190
5	9.962868	9.970682	9,978357	9,985899	9.993313
6	9,962999	9,970811	9,978484	9,986024	9.993435
7	9.963131	9,970940	9,978611	9,986148	9.993558
8	9.963262	9,971069	9,978737	9,986273	9.993680
9	9.963393	9,971198	9,978864	9,986497	9.993802
10	9.963524	9,971316	9,978991	9,986522	9.993925
11	9.963656	9.971455	9,979117	9,986646	9.994047
12	9.963787	9,971584	9,979244	9,986771	9.994169
13	9.963918	9,971713	9,979370	9,986895	9.994292
14	9.964049	9,971842	9,979497	9,987019	9.994414
15	9.964180	9,971970	9,979623	9,987144	9.994536
16	9.964311	9,972099	9,979750	9,987268	9.994658
17	9.964442	9,972228	9,979876	9,987392	9.994780
18	9.964573	9.972356	9,980002	9,987516	9.994902
19	9.964704	9,972485	9,980129	9,987640	9,995024
20	9.964835	9.972613	9,980255	9,987765	9.995146
21	9.964965	9,972742	9,980381	9,987889	9.995268
22	9.965096	9,972870	9,980507	9,988013	9.995390
23	9.965227	9.972998	9.980634	9,988137	9.995512
24	9.965358	9,973127	9.980760	9,988261	9.995634
25	9.965488	9,973255	9.980886	9,988385	9.995756
26	9.965619	9,973383	9.981012	9,988508	9.995878
27	9.965749	9,973512	9.981138	9,988632	9.996000
28	0.965880	9,973640	9.981264	9,988756	9.996121
29	9.966009	9,973768	9.981390	9,988880	9.996243
30	9.966141	9,973896	9,981516	9,989004	9.996365

S.	Logarith	Logarith	Logarith	Logarith	Logarith
30	9.966141	9.973896	9.981516	9.989004	9.996365
31	9.966271	9.974024	9.981641	9.989127	9.996486
32	9.966401	9.974152	9.981767	9.989251	9.996608
33	9.966532	9.974280	9.981893	9.989375	9.996730
34	9.966662	9.974408	9.982019	9.989598	9.996851
35	9.966792	9.974536	9.982145	9.989622	9.996973
36	9.966923	9.974664	9.982270	9.989745	9.997094
37	9.967053	9.974792	9.982396	9.989869	9.997215
38	9.967183	9.974920	9.982521	9.989992	9.997337
39	9.967313	9.975048	9.982647	9.990116	9.997458
40	9.967443	9.975175	9.982773	9.990239	9.997580
41	9.967573	9.975303	9.982898	9.990363	9.997701
42	9.967703	9.975431	9.983024	9.990486	9.997822
43	9.967833	9.975558	9.983149	9.990609	9.997943
44	9.967963	9.975686	9.983274	9.990732	9.998065
45	9.968093	9.975814	9.983400	9.990856	9.998186
46	9.968222	9.975941	9.983525	9.990979	9.998307
47	9.968352	9.976069	9.983650	9.991102	9.998428
48	9.968482	9.976196	9.983776	9.991225	9.998549
49	9.968612	9.976324	9.983901	9.991348	9.998670
50	9.968741	9.976451	9.984026	9.991471	9.998791
51	9.968871	9.976578	9.984151	9.991594	9.998912
52	9.969001	9.976706	9.984276	9.991717	9.999033
53	9.969130	9.976833	9.984401	9.991840	9.999154
54	9.969260	9.976960	9.984526	9.991963	9.999275
55	9.969389	9.977087	9.984651	9.992086	9.999395
56	9.969518	9.977214	9.984776	9.992209	9.999516
57	9.969648	9.977341	9.984901	9.992322	9.999637
58	9.969777	9.977469	9.985026	9.992454	9.999758
59	9.969907	9.977596	9.985151	9.992577	9.999878
60	9.970036	9.977723	9.985276	9.992700	1.000000

S.	1 Deg. 0 Logarithm	1 Deg. 1 Logarithm	1 Deg. 2 Logarithm	1 Deg. 3 Logarithm	1 Deg. 4 Logarithm
0	10.000000	10,007178	10,014239	10,021188	10.028028
1	10.000120	10,007296	10,014356	10,021303	10.028141
2	10.000240	10,007415	10,014473	10,021418	10.028254
3	10.000361	10,007533	10,014590	10,021533	10.028367
4	10.000481	10,007652	10,014706	10,021648	10.028470
5	10.000602	10,007770	10,014823	10,021762	10.028593
6	10.000722	10,007889	10,014939	10,021877	10.028706
7	10,000843	10,008007	10,015056	10,021992	10.028819
8	10,000963	10.008126	10,015172	10,022106	10.028932
9	10,001093	10,008244	10,015289	10,022221	10.029044
10	10,001204	10,008363	10,015405	10,022336	10.029157
11	10,001324	10,008481	10,015522	10,022450	10.029270
12	10,001444	10,008559	10,015638	10,022565	10.029383
13	10,001564	10,008717	10,015754	10,022679	10.029496
14	10,001685	10,008836	10,015871	10,022794	10.029608
15	10,001805	10,008954	10,015987	10,022908	10.029721
16	10,001925	10,009072	10,016103	10,023023	10.029834
17	10,002045	10.009190	10,016220	10,023177	10.029946
18	10,002165	10,009308	10,016336	10,023251	10.030059
19	10,002285	10,009426	10.016452	10,023366	10.030171
20	10,002405	10,009544	10,016568	10,023480	10.030284
21	10,002525	10,009662	10,016684	10,023594	10.030396
22	10,002645	10,009780	10,016800	10,023709	10.030509
23	10,002765	10,009898	10,016916	10,023823	10.030621
24	10,002885	10,010006	10,017032	10,023937	10.030734
25	10,003005	10,010134	10,017148	10,024051	10,030846
26	10,003124	10,010252	10.017264	10,024165	10.030958
27	10.003244	10,010370	10,017380	10,024279	10.031071
28	10,003364	10,010487	10,017496	10,024393	10.031183
29	10.003483	10,010605	10,017612	10,024507	10.031295
30	10,003603	10,010723	10,017728	10,024622	10,031407

	1 Deg. 0	1 Deg. 1	1 Deg. 2	1 Deg. 3	1 Deg. 4	33
S.	*Logarithm*	*Logarithm*	*Logarithm*	*Logarithm*	*Logarithm*	
30	10.003603	10.010723	10.017728	10.024622	10.031407	
31	10.003723	10,010841	10.017844	10.024735	10.031520	
32	10.003842	10.010958	10.017959	10.024849	10.031632	
33	10.003962	10.011076	10.018075	10.024963	10,031744	
34	10,004081	10.011193	10.018191	10.025077	10.031856	
35	10.004201	10.011311	10.018306	10.025191	10.031968	
36	10,004320	10.011428	10.018422	10.025305	10.032080	
37	10.004440	10.011546	10.018538	10.025419	10.032192	
38	10,004559	10.011663	10.018653	10.025532	10,032302	
39	10,004679	10.011781	10.018769	10,025646	10.032416	
40	10.004798	10.011898	10.018884	10.025760	10.032528	
41	10.004917	10.012016	10.019000	10.025874	10,032640	
42	10.005036	10.012133	10.019115	10,025987	10.032752	
43	10.005156	10,012250	10.019231	10.026101	10,032864	
44	10,005275	10.012367	10,019346	10.026214	10.032976	
45	10.005394	10.012485	10.019461	10,026328	10.033088	
46	10.005513	10,012602	10.019577	10.026441	10.033199	
47	10,005632	10.012719	10.019692	10,026555	10,033311	
48	10.005751	10.012836	10.019807	10.026668	10.033423	
49	10.005870	10.012953	10.019923	10.026782	10.033534	
50	10,005989	10.013070	10.020038	10.026895	10,033646	
51	10,006108	10.013187	10.020153	10.027009	10,033758	
52	10.006227	10.013304	10.020278	10.027122	10.033869	
53	10,006346	10.013421	10.020383	10.027235	10.033981	
54	10.006465	10.013538	10.020498	10.027349	10,034092	
55	10.006584	10,013655	10.020603	10,027462	10,034204	
56	10.006703	10.013772	10.020728	10.027575	10.034315	
57	10.006821	10.013889	10.020843	10.097688	10,034427	
58	10.006940	10.014006	10.020958	10,027801	10,034538	
59	10.007059	10.014123	10.021073	10.027915	10,034650	
60	10,007178	10.014239	10.021188	10.028028	10,034761	

S.	1 Deg. 5 Logarithm	1 Deg. 6 Logarithm	1 Deg. 7 Logarithm	1 Deg. 8 Logarithm	1 Deg. 9 Logarithm
0	10,034761	10.041392	10.046923	10.053357	10.059697
1	10,034872	10.041501	10.047031	10,053463	10.059802
2	10,034984	10.041611	10.047139	10.053570	10.059907
3	10,035095	10,041721	10.047247	10.053676	10.061011
4	10.035206	10.041830	10.047354	10,053782	10.061116
5	10,035318	10.041940	10 047462	10.053889	10.061221
6	10,035429	10.042049	10.047570	10,053995	10.061326
7	10,035540	10.042159	10.047678	10.054101	10.061431
8	10.035651	10.042268	10.047786	10,054207	10,061535
9	10,035762	10.042378	10.047894	10.054314	10,061640
10	10.035873	10.042487	10.048002	10.054420	10.061745
11	10.035984	10.042596	10.048109	10,054526	10.061849
12	10.036095	10.042706	10.048217	10.054632	10.061954
13	10,036206	10.042815	10.048315	10,054738	10,062058
14	10.036317	10.042924	10.048432	10,054844	10.062163
15	10,036428	10.043034	10.048540	10.054950	10.062268
16	10.036539	10.043143	10.048648	10.055056	10.062372
17	10.036650	10.043252	10.048755	10.055162	10,062477
18	10,036761	10.043361	10,048863	10.055268	10.062581
19	10.036871	10.043470	10.048970	10.055374	10.062685
20	10.036983	10.043580	10.049078	10,055480	10.062790
21	10,037093	10.043689	10.049185	10.055586	10,062894
22	10.037204	10.043798	10.049293	10.055692	10.062999
23	10.037315	10.043907	10.049400	10.055798	10,063103
24	10.037425	10.044016	10.049508	10.055904	10.063207
25	10.037536	10.044125	10,049615	10.056010	10.063312
26	10,037647	10.044234	10.049722	10,056115	10.063416
27	10.037757	10.044343	10.049830	10.056221	10,063520
28	10.037868	10.044452	10.049937	10.056327	10.063624
29	10.037979	10.044561	10,050044	10.056433	10,063728
30	10.038089	10.044669	10.050152	10.056538	10.063833

S.	Logarithm	Logarithm	Logarithm	Logarithm	Logarithm
30	10.038089	10.044669	10.050252	10.056838	10.063833
31	10.038200	10.044778	10.050259	10.056644	10.063937
32	10.038310	10.044887	10,050366	10.056750	10.064041
33	10.038420	10.044996	10,050473	10.056855	10,064145
34	10,038531	10.044105	10,050580	10.056961	10.064249
35	10,038641	10,044213	10.050687	10,057066	10.064353
36	10.038752	10,044322	10.050794	10,057172	10.064457
37	10.038862	10,044431	10.050902	10.057277	10.064561
38	10.038972	10,044539	10,051009	10.057383	10.064665
39	10,039082	10,044648	10,051116	10.057488	10.064769
40	10,039193	10,044756	10,051223	10,057594	10.064873
41	10,039303	10.044865	10.051329	10.057699	10.064977
42	10.039413	10.044974	10.051436	10,057804	10.065081
43	10.039523	10.045082	10,051543	10,057910	10.065184
44	10,039633	10,045191	10.051650	10.058015	10.065288
45	10.039744	10.045299	10.051757	10.058120	10,065392
46	10.039854	10,045407	10.051864	10,058226	10.065496
47	10,039964	10.045516	10.051971	10.058331	10,065599
48	10.040074	10,045624	10.052077	10.058436	10,065703
49	10.040184	10.045733	10.052184	10,058541	10.065807
50	10.040294	10.045841	10,052291	10.058647	10.065911
51	10,040404	10,045949	10,052398	10.058752	10.066014
52	10.040513	10.046057	10,052504	10.058857	10,066118
53	10,040623	10,046166	10.052611	10,058962	10.066221
54	10,040733	10.046274	10.052718	10.059067	10.066325
55	10,040843	10.046382	10.052824	10.059172	10.066428
56	10.040953	10.046490	10.052931	10.059277	10.066532
57	10.041063	10.046598	10.053037	10.059382	10.066635
58	10,041172	10.046706	10.053144	10.059487	10.066739
59	10,041282	10.046815	10,053250	10.059592	10.066842
60	10,041392	10.046923	10.053357	10.059697	10.066946

1 Deg. 10.		1 Deg. 11.		1 Deg. 10.		1 Deg. 11.	
S.	Logarithm	Logarithm	S.	Logarithm		Logarithm	
0	10,066946	10,073106	30	10.070037		10.076154	
1	10.067049	10,073208	31	10.070140		10.076255	
2	10.067153	19,073310	32	10.070242		10.076356	
3	10,067256	10.073412	33	10.070345		10.076457	
4	10.067359	10.073514	34	10 070447		10.076559	
5	10.067463	10.073616	53	10,070550		10,076660	
6	10.067566	10,073717	36	10.070652		10.076761	
7	10.067669	10.073819	37	10.070755		10.076862	
8	10.067772	10.073921	38	10,070857		10.076963	
9	10.067875	10.074023	39	10,070950		10.077064	
10	10.067979	10,074124	40	10.071062		10.077165	
11	10.068082	10.074226	41	10.071265		10.077266	
12	10.068185	10,074328	42	10,071267		10.077367	
13	10.068288	10,074429	43	10.071370		10.077468	
14	10,068391	10.074531	44	10.071472		10,077569	
15	10.068494	10.074633	45	10.071574		10,077670	
16	10,068597	10.074734	46	10.071676		10.077771	
17	10,068700	10.074836	47	10.071779		10,077871	
18	10,068803	10.074937	48	10,071881		10.077972	
19	10.068906	10.075039	49	10.071983		10.078073	
20	10.069009	10.075130	50	10.072085		10.078174	
21	10.069112	10.075242	51	10.072188		10.078275	
22	10,069215	10.075343	52	10.072290		10.078375	
23	10,069318	10.075445	53	10.072392		10.078476	
24	10,069410	10.075546	54	10,072494		10.078577	
25	10.069513	10.075647	55	10.072596		10.078677	
26	10,069626	10.075749	56	10,072698		10.078778	
27	10.069729	10.075850	57	10,072800		10.078879	
28	10.069831	10,075951	58	10,072902		10.078979	
29	10.069934	10.076053	56	10.073004		10.079080	
30	10.076037	10,076154	60	10.073106		10,079180	

Primum Mobile:

Or

Tables ſhewing the *Declinations, Right Aſcentions, Aſcentional Differences, Oblique Aſcentions* of the Sun, and other Planets.

With other *TABLES*,

For the more ſpeedy erecting of a FIGURE, and finding the *Arke of Direction.*

LONDON.

Printed by *Joſeph Moxon.*

1656.

Primum Mobile:

Tables shewing the *Declinations, Right Ascensions, Ascensional Differences, Oblique Ascensions* and other Planets.

With other *TABLES*,

For the more speedy erecting of a FIGURE, and finding the *Arke of Direction*.

LONDON.

Printed by *Joseph Moxon*.

1656.

A Table for converting *Hours* and *Min.* into *Deg.* and *Min.* of the *Equator*

Hor.	*Deg. Equator.*
1	15
2	30
3	45
4	60
5	75
6	90
7	105
8	120
9	135
10	150
11	165
12	180
13	195
14	210
15	225
16	240
17	255
18	270
19	285
20	300
21	315
22	330
23	345
24	360

Min.	*Deg.* and *Min. Equa.*	
1	0	15
2	0	30
3	0	45
4	1	0
5	1	15
6	1	30
7	1	45
8	2	0
9	2	15
10	2	30
11	2	45
12	3	0
13	3	15
14	3	30
15	3	45
16	4	0
17	4	15
18	4	30
19	4	45
20	5	0
21	5	15
22	5	30
23	5	45
24	6	0
25	6	15
26	6	30
27	6	45
28	7	0
29	7	15
30	7	30

Min.	*Deg* and *Min Eq.*	
31	7	45
32	8	0
33	8	15
34	8	30
35	8	45
36	9	0
37	9	15
38	9	30
39	9	45
40	10	0
41	10	15
42	10	30
43	10	45
44	11	0
45	11	15
46	11	30
47	11	45
48	12	0
49	12	15
50	12	30
51	12	45
52	13	0
53	13	15
54	13	30
55	13	45
56	14	0
57	14	15
58	14	30
59	14	45
60	15	0

♈	*North Latitude.*						♎ *South Latitude*	
♈	0	1	2	3	4	5	6	♎
00.	0	0. 55	1. 50	2. 45	3. 40	4, 3	6. 00	30
1 0.	24	1, 19	2. 14	3. 09	4, 04	4. 59	6, 12	29
2 0,	48	1. 43	2. 38	3. 33	4, 28	5, 23	6. 18	28
3 1.	12	2. 07	3. 02	3 57	4. 52	5. 47	6. 42	27
4 1.	36	2, 31	3. 26	4. 21	5. 16	6. 11	7. 6	26
5 2,	00	2. 55	3. 50	4. 45	5, 50	6, 35	7. 30	25
6 2.	24	3. 19	4. 14	5. 09	6, 04	6, 59	7. 53	24
7 2.	47	3. 47	4. 38	5, 33	6, 28	7. 23	8. 17	23
8 3,	11	4. 07	5, 02	5, 57	6. 52	7, 47	8, 41	22
9 3.	35	4. 30	5, 25	6. 20	7, 15	8. 10	9, 5	21
10 3,	58	4, 54	5. 48	6. 44	7. 39	8. 34	9. 29	20
11 4.	22	5. 18	6. 12	7, 08	8. 03	8. 58	9. 53	19
12 4.	46	5. 42	6. 36	7. 32	8, 27	9. 22	10,16	18
13 5.	09	6. 05	7. 0	7. 55	8. 50	9. 46	10.40	17
14 5.	33	6. 29	7. 24	8. 19	9. 14	10.10	11. 4	16
15 5.	56	6, 52	7. 47	8. 42	9. 37	10,33	11.27	15
16 6.	19	7. 14	8, 09	9, 05	10, 0	10,56	11.51	14
17 6.	42	7, 37	8. 32	9. 28	10.23	11.15	12.14	13
18 7.	05	8, 0	8, 56	9, 51	10.46	11.42	12.37	12
19 7,	28	8. 23	9. 18	10,14	11.09	12.05	13. 0	11
20 7.	51	8. 46	9 ,42	10.38	11,33	12,28	13,23	10
21 8.	13	9. 05	10.09	11.01	11.56	12.51	13.46	9
22 8.	36	9, 32	10.28	11.23	12.19	13.14	14,09	8
23 8.	58	9. 55	10.51	11,46	12,42	13.37	14.32	7
24 9.	21	10,17	11,13	12.08	13.04	14,00	14.54	6
25 9,	43	10,39	11.35	12.30	13.26	14.22	15,17	5
26 10.	5	11.01	11.57	12.52	13,48	14,44	15.39	4
27 10.26		11,23	12,19	13,14	14.10	15.06	16 01	3
28 10.48		11.45	12,41	13,36	14,32	15.28	16.23	2
29 11,05		12.05	13.02	13,57	14.53	15.49	16. 5	1
30 11.31		12.27	13.23	14,19	15.15	6.11	17,06	0

♓ *South Latitude* ♍ *North Latitude.*

♈ *South Latitude* ♎ *North Latitude.*

♈	0	1	2	3	4	5	6	♎
0		0. 55	1. 50	2, 45	3. 40	4. 35	5. 30	30
1		0. 31	1, 27	2, 21	3. 16	4. 11	5. 6	29
2		0. 07	1, 03	1. 57	2, 52	3, 47	4. 42	28
3		0. 17	0. 39	1. 34	2, 29	3. 24	4. 19	27
4		0. 41	0. 15	1. 10	2, 05	3, 00	3. 55	26
5		1. 05	0, 09	0, 46	1. 41	2. 36	3. 31	24
6		1. 28	0, 33	0. 22	1. 17	2. 02	3. 07	23
7		1, 52	0, 57	0 02	0. 53	1. 48	2. 43	22
8		2. 16	1. 21	0. 26	0, 29	1, 25	2. 20	22
9		2, 29	1. 44	0, 49	0. 06	1. 02	1. 57	20
10		3. 03	2, 08	1. 13	0. 18	0. 38	1. 33	19
11		3. 27	2, 32	1, 37	0, 41	0. 14	1. 09	18
12		3. 51	2. 56	2. 01	1, 04	0. 10	0. 46	17
13		4, 14	3. 19	2, 24	1. 28	0. 33	0. 23	16
14		4. 37	3, 41	2, 57	1. 52	0. 56	0. 00	15
15		5. 00	4. 05	3, 10	2. 15	1. 19	0. 23	14
16		5. 23	4. 28	3, 32	2, 38	1. 41	0. 4	13
17		5. 46	4, 51	3. 55	3, 00	2. 04	1. 09	12
18		6, 09	5. 14	4. 18	3. 23	2. 27	1. 32	11
19		6, 32	5, 37	4. 41	3. 46	2. 50	1. 55	10
20		6, 55	5. 59	5. 04	4, 08	3. 12	2. 17	9
21		7. 17	6. 21	5. 27	4. 30	3, 34	2. 39	8
22		7. 40	6, 44	5. 50	4, 53	3, 57	3. 01	7
23		8. 03	7. 07	6, 12	5. 15	4. 19	3. 23	6
24		8. 25	7. 30	6, 34	5. 38	4. 42	3. 45	5
25		8. 47	7. 52	6. 56	6. 00	5. 04	4. 07	4
26		9, 09	8. 14	7, 18	6, 22	5. 26	4. 29	3
27		9. 31	8. 35	7. 50	6, 43	5. 47	4. 50	2
28		09. 53	8. 57	8. 01	7, 04	6. 08	5. 11	2
29		10. 14	9. 18	8. 22	7. 25	6. 29	5. 32	1
30		10, 35	9. 39	8, 43	7. 4[illegible]	6. 50	5. 53	0

♑ *North Latitude.* G 2 ♍ *South Latitude.*

Taurus *North Latitude.* Scorpio *South Latitude.*

♉	0	1	2	3	4	5	6	♏
☉	11. 31	12, 27	13. 23	14. 19	15, 15	16. 11	17. 06	30
1	11. 52	12. 48	13. 44	14. 40	15, 36	16. 33	17. 28	29
2	12, 13	13. 09	14. 05	15, 01	15. 57	16, 54	17. 49	28
3	12. 33	13, 29	14. 25	15, 21	16, 18	17. 14	18, 10	27
4	12, 54	13. 50	14. 47	15. 42	16, 39	17. 35	18, 31	26
5	13, 14	14. 11	15, 07	16. 03	17, 00	17, 56	18, 52	25
6	13, 34	14. 31	15. 27	16. 24	17. 20	18, 17	19, 12	24
7	13. 54	14. 51	15. 47	16, 44	17. 40	18, 35	19, 32	23
8	14. 14	15. 11	16. 07	17. 04	18. 00	18, 57	19, 52	22
9	14, 33	15, 30	16. 26	17, 23	18. 20	19, 17	20. 12	21
10	14. 52	15. 49	16, 45	17. 42	18, 39	19, 36	20. 32	20
11	15. 11	16. 08	17. 04	18, 01	18, 58	19, 55	20, 51	19
12	15. 29	16, 26	17. 23	18. 20	19. 17	20. 14	21. 10	18
13	15. 48	16. 45	17. 42	18. 39	19, 36	20. 33	21. 29	17
14	16. 06	17. 03	18. 00	18. 57	19, 54	20, 52	21. 48	16
15	16, 24	17. 21	18, 18	19. 15	20. 12	21, 10	22. 06	15
16	16. 41	17, 38	18, 36	19. 33	20. 30	21, 38	22, 24	14
17	16. 58	17, 55	18, 53	19. 51	20, 48	21. 46	22. 42	13
18	17, 15	18. 12	19, 10	20. 08	21, 05	22, 03	22. 59	12
19	17. 32	18. 29	19, 27	20. 25	21, 22	22, 20	23. 16	11
20	17. 48	18. 46	19, 44	20. 41	21. 39	22. 37	23. 33	10
21	18. 04	19. 02	20. 00	20, 57	21, 55	22. 53	23. 50	9
22	18. 20	19. 18	20. 16	21, 13	22. 11	23. 09	24. 06	8
23	18. 35	19, 34	20, 32	21, 29	22, 27	23. 25	24. 22	7
24	18. 50	19. 49	20. 47	21, 45	22, 43	23, 41	24. 38	6
25	19. 05	20. 03	21. 02	22, 00	22. 58	23, 56	24. 53	5
26	19. 19	20, 17	21. 16	22, 14	23. 12	24, 11	25. 08	4
27	19, 33	20. 31	21. 30	22. 28	23. 26	24. 25	25. 22	3
28	19, 47	20, 45	21. 44	22, 42	23. 40	24, 39	25. 36	2
29	20. 09	20. 59	21, 57	22, 56	23, 54	24. 53	25. 50	1
30	20. 13	21. 12	22. 10	23. 09	24, 07	25. 06	26. 05	0

☊ *North Latitude.* ☋ *South Latitude.*

♉ *South Latitude.*					♏ *North Latitude.*			
0	1	2	3	4	5	6		
0	10. 35	9. 39	8. 43	7. 46	6, 50	5. 53	30	
1	10, 56	10. 00	9. 04	8, 07	7. 11	6. 14	29	
2	11. 17	10. 20	9. 24	8. 28	7. 31	6. 34	28	
3	11. 37	10, 40	9. 44	8. 48	7, 51	6, 54	27	
4	11. 58	11, 01	10, 04	9, 08	8, 11	7. 14	26	
5	12. 18	11, 21	10, 24	9. 28	8, 31	7. 34	25	
6	12. 38	11. 41	10. 44	9. 48	8. 51	7, 53	24	
7	12, 58	12, 01	11, 04	10. 07	9. 10	8. 12	23	
8	13. 17	12. 20	11. 23	10. 26	9. 29	8. 31	22	
9	13, 36	12. 39	11. 42	10. 45	9, 48	8. 50	21	
10	13. 55	12. 58	12. 01	11, 04	10. 07	9, 09	20	
11	14, 14	13, 17	12, 20	11, 23	10. 29	9, 27	19	
12	14. 32	13, 35	12. 38	11, 41	10. 43	9. 45	18	
13	14. 50	13. 53	12. 56	11. 59	11, 01	10. 03	17	
14	15, 08	14. 11	13, 14	12. 17	11. 19	10. 21	16	
15	15, 26	14. 29	13, 31	12. 34	11. 36	10, 38	15	
16	15. 43	14. 46	13, 48	12, 51	11. 53	10, 55	14	
17	16, 00	15. 03	14. 05	13, 08	12, 10	11. 12	13	
18	16. 17	15, 20	14. 22	13, 24	12, 26	11. 28	12	
19	16. 34	15, 36	14. 38	13. 40	12. 42	11. 44	11	
20	16. 50	15, 52	14. 54	13. 56	12, 58	12, 00	10	
21	17. 06	16, 08	15. 10	14. 12	13, 14	12. 15	9	
22	17. 22	16, 24	15, 26	14, 28	13, 29	12. 30	8	
23	17, 37	16, 39	15. 41	14, 43	13. 44	12, 45	7	
24	17. 52	16, 54	15, 56	14, 58	13. 59	13, 00	6	
25	18. 07	17, 09	16. 10	15. 12	14. 13	13. 14	5	
26	18. 21	17. 23	16, 25	15. 26	14 27	13. 28	4	
27	18. 35	17. 36	16, 38	15, 39	14. 41	13. 41	3	
28	18, 48	17. 50	16, 51	15. 52	14. 54	13. 54	2	
29	19. 01	18. 03	17. 04	16, 05	15. 07	14. 07	1	
30	19. 14	18. 16	17, 17	16. 18	15. 20	14	21	0

♎ *South Latitude.* ♒ *North Latitude.*

♊ *North Latitude.*								♑ *South Latitude.*
♊	0	1	2	3	4	5	6	♑
0	20. 13	21. 12	22. 10	23. 9	24. 07	25. 06	26. 05	30
1	20. 26	21. 25	22. 23	23. 22	24. 20	25. 19	26. 18	29
2	20. 38	21. 37	22. 36	23. 35	24. 33	25. 32	26. 29	28
3	20. 50	21. 49	22. 48	23. 47	24. 45	25. 44	26. 42	27
4	21. 01	22. 00	22. 59	23. 58	24. 57	25. 55	26. 54	26
5	21. 13	22. 11	23. 10	24. 09	25. 08	26. 07	27. 05	25
6	21. 23	22. 22	23. 21	24. 21	25. 19	26. 18	27. 21	24
7	21. 33	22. 32	23. 31	24. 31	25. 30	26. 29	27. 27	23
8	21. 43	22. 42	23. 41	24. 41	25. 40	26. 39	27. 37	22
9	21. 53	22. 52	23. 51	24. 51	25. 50	26. 49	27. 47	21
10	22. 02	23. 01	24. 00	25. 00	25. 59	26. 58	27. 56	20
11	22. 10	23. 10	24. 9	25. 09	26. 08	27. 07	28. 05	19
12	22. 19	23. 19	24. 18	25. 18	26. 17	27. 16	28. 14	18
13	22. 27	23. 27	24. 26	25. 26	26. 25	27. 24	28. 22	17
14	22. 34	23. 34	24. 33	25. 33	26. 32	27. 31	28. 30	16
15	22. 41	23. 41	24. 40	25. 39	26. 39	27. 38	28. 37	15
16	22. 47	23. 43	24. 46	25. 45	26. 45	27. 45	28. 43	14
17	22. 53	23. 53	24. 53	25. 52	26. 52	27. 52	28. 49	13
18	22. 59	23. 59	24. 59	25. 58	26. 58	27. 58	28. 5	12
19	23. 4	24. 4	25. 4	26. 03	27. 03	28. 03	29. 2	11
20	23. 9	24. 9	25. 9	26. 08	27. 08	28. 08	29. 7	10
21	23. 13	24. 13	25. 13	26. 13	27. 12	28. 12	29. 12	9
22	23. 17	24. 17	25. 17	26. 17	27. 16	28. 16	29. 15	8
23	23. 20	24. 20	25. 20	26. 20	27. 19	28. 19	29. 18	1
24	23. 23	24. 23	25. 23	26. 23	27. 22	28. 22	29. 22	6
25	23. 26	24. 26	25. 26	26. 26	27. 25	28. 25	29. 25	5
26	23. 28	24. 28	25. 28	26. 28	27. 28	28. 28	29. 28	4
27	23. 30	24. 30	25. 30	26. 30	27. 30	28. 30	29. 30	3
28	23. 30	24. 31	25. 31	26. 31	27. 31	28. 31	29. 31	2
29	23. 31	24. 31	25. 31	26. 31	27. 31	28. 31	29. 31	1
30	23. 31	24. 31	25. 31	26. 31	27. 31	28. 31	29. 31	0

♍ *South Latitude.* ♋ *North Latitude.*

♊ South Latitude.							♐ North Latitude.	
	0	1	2	3	4	5	6	
		19. 14	18. 16	17. 17	16. 18	15. 20	14. 21	30
1		19, 27	18. 28	17. 29	16. 30	15. 31	14, 33	29
2		19. 31	18, 40	17. 41	16. 42	15. 44	14. 45	28
3		19. 51	18. 52	17. 53	16. 54	15. 55	14. 57	27
4		20. 02	19, 03	18. 08	17. 06	16. 07	15. 08	26
5		20. 13	19. 15	18. 16	17. 17	16, 18	15. 18	25
6		20. 24	19. 25	18. 26	17, 27	16. 28	15. 28	24
7		20. 34	19. 35	18. 36	17. 37	16, 38	15. 38	23
8		20. 44	19. 45	18. 46	17 47	16. 47	15. 48	22
9		20. 54	19, 55	18, 56	17. 56	16. 56	15. 57	21
10		21. 03	20. 04	19. 05	18. 05	17. 06	16. 05	20
11		21. 11	20. 12	19. 13	18. 13	17. 14	16. 13	19
12		21. 19	20. 20	19. 21	18. 21	17. 22	16. 21	18
13		21. 27	20. 28	19, 28	18. 29	17. 29	16. 28	17
14		21. 35	20, 35	19. 35	18. 36	17. 30	16. 35	16
15		21. 41	20, 41	19. 41	18. 42	17. 42	16. 42	15
16		21. 47	20. 47	19. 47	18. 48	17. 98	16. 48	14
17		21, 53	20. 53	19. 53	18. 54	17. 54	16. 54	13
18		21. 59	20. 59	19, 59	19. 00	18. 00	16. 59	12
19		22, 04	21, 04	20. 04	19, 05	18. 04	17. 04	11
20		22. 09	21. 09	20. 09	19. 10	18. 10	17. 09	10
21		22, 13	21, 13	20. 13	19, 14	18. 14	17. 14	9
22		22. 17	21. 17	20. 17	19. 17	18. 17	17. 17	8
23		22, 20	21. 20	20. 20	19, 20	18. 20	17, 20	7
24		22, 23	21. 23	20. 23	19. 23	18. 23	17. 23	6
25		22, 26	21. 26	20, 26	19, 26	18, 26	17. 26	5
26		22. 28	21. 28	20, 28	19. 28	18, 28	17, 28	4
27		22. 30	21. 30	20. 30	19. 30	18. 30	17, 30	3
28		22, 31	21, 31	20. 31	19. 31	18. 31	17. 31	2
29		22. 31	21. 31	20. 31	19. 31	18. 31	17. 31	1
30		22. 31	21, 31	20. 31	19. 31	18. 31	17, 31	0
♈ North Latitude.							♎ South Latitude.	

♈ *North Latitude.* ♎ 180 Adde.

	0	1	2	3	4	5	6	
0	0. 00	359.37	359.13	358.49	358.25	358. 1	357.37	30
1	0, 55	00.32	00.08	359.44	359.20	358.56	358.32	29
2	1, 50	01.27	01,03	0. 39	0. 15	359.51	359.27	28
3	2. 45	02.22	01.58	1. 34	1. 10	0.46	0.22	27
4	3, 40	3. 17	2. 53	2. 29	2. 5	1. 41	1. 17	26
5	4. 35	4. 12	3. 48	3. 24	3. 0	2. 36	2. 12	25
6	5, 30	5, 07	4. 43	4. 19	3. 55	3. 31	3. 7	24
7	6. 25	6. 02	5. 38	5. 14	4. 50	4. 26	4. 2	23
8	7, 21	6, 57	6. 33	6. 9	5. 45	5. 21	4. 57	22
9	8. 16	7. 52	7. 28	7. 4	6. 40	6. 16	5. 52	21
10	9. 11	8, 47	8. 23	7. 59	7. 35	7. 11	6. 47	20
11	10. 06	09, 42	9, 18	8. 55	8. 31	8. 7	7. 43	19
12	11, 02	10. 38	10. 14	9. 51	9. 27	9. 3	8. 39	18
13	11, 57	11. 33	11. 09	10. 46	10. 22	9. 58	9. 34	17
14	12, 53	12. 29	12. 05	11. 42	11. 18	10. 54	10. 30	16
15	13. 48	13. 25	13, 01	12. 38	12. 14	11. 50	11. 26	15
16	14. 44	14, 20	13, 57	13. 34	13. 10	12. 46	12. 22	14
17	15. 40	15. 16	14, 53	14. 30	14. 6	13. 42	13. 18	13
18	16. 35	16, 12	15. 49	15. 26	15. 2	14. 39	14. 15	12
19	17. 31	17. 08	16, 45	16. 22	15. 58	15. 35	15. 11	11
20	18. 27	18. 04	17. 41	17. 18	16. 54	16. 31	16. 7	10
21	19. 23	19. 00	18, 37	18. 14	17. 51	17. 28	17. 4	9
22	20. 20	19. 56	19. 33	19. 11	18. 48	18. 25	18. 1	8
23	21. 16	20. 53	20, 30	20. 8	19. 45	19. 22	18. 58	7
24	22. 12	21. 50	21. 27	21. 5	20. 42	20. 19	19. 55	6
25	23, 09	22. 47	22. 24	22. 2	21. 39	21. 16	20. 52	5
26	24. 06	23. 44	23. 21	22. 59	22. 36	22. 13	21. 50	4
27	25. 02	24. 41	24. 19	23. 57	23. 34	23. 11	22. 48	3
28	25. 59	25. 38	25. 16	24. 54	24. 31	24. 9	23. 46	2
29	26. 57	26. 35	26. 13	25. 51	25. 29	25. 7	24. 44	1
30	27. 54	27. 33	27. 11	26. 49	26. 27	26. 5	25. 42	0

	♈ *South Latitude*				♎ 180 *Adde.*			
0	1	2	3	4	5	6		
0	0. 23	0. 47	1, 11	1. 35	1, 59	2. 23	30
1	1, 18	1. 42	2. 06	2, 30	2. 54	3. 18	29
2	2. 13	2. 37	3. 01	3. 25	3. 49	4. 13	28
3	3. 08	3. 32	3. 56	4. 20	4. 44	5. 08	27
4	4. 03	4. 27	4, 51	5, 15	5, 39	6. 03	65
5	4. 58	5. 22	5. 46	6. 10	6. 34	6, 58	24
6	5, 54	6. 18	6. 42	7. 06	7. 30	7. 53	23
7	6, 49	7. 13	7. 37	8. 01	8. 25	8. 48	22
8	7. 44	8, 08	8, 32	8. 56	9. 20	9, 43	22
9	8. 40	9, 04	9. 28	9, 51	10. 15	10. 38	20
10	9. 35	9. 59	10, 23	10. 46	11. 10	11. 33	19
11	10. 30	10. 54	11. 18	11. 41	12. 05	12. 28	18
12	11. 25	11. 49	12. 13	12. 36	13. 00	13. 23	17
13	12. 20	12. 44	13. 08	13. 31	13. 55	14. 18	16
14	13. 16	13. 39	14, 03	14, 26	14, 50	15. 13	15
15	14. 12	14. 35	14. 58	15, 21	15, 45	16. 08	14
16	15. 07	15. 30	15, 53	16. 16	16. 40	17, 03	13
17	16. 02	16, 25	16, 48	17, 11	17. 35	17. 58	12
18	16, 58	17, 21	17. 44	18, 07	18. 30	18. 53	11
19	17. 54	18. 17	18. 40	19, 02	19. 25	19. 48	10
20	18. 50	19. 13	19. 36	19, 58	20, 21	20. 43	9
21	19. 46	20. 09	20. 32	20. 54	21, 17	21. 39	8
22	20. 42	21. 05	21, 28	21. 50	22, 12	22. 34	7
23	21. 38	22. 01	22, 24	22. 46	23. 08	23. 30	6
24	22. 35	22. 57	23, 20	23, 42	24. 04	24. 26	5
25	23. 31	23. 53	24. 16	24. 38	25, 00	25, 21	4
26	24, 28	24 50	25. 12	25, 34	25. 56	26. 17	3
27	25, 25	25 47	26. 09	26, 30	26, 52	27. 13	2
28	26, 22	26. 43	27. 05	27. 26	27, 48	28. 09	2
29	27. 19	27. 40	28. 01	28. 22	28. 44	29, 05	1
30	28. 16	28, 38	28, 58	29. 19	29. 40	30. 01	0

♉ *North Latitude.* ♏ 180 *Adde.*

	0	1	2	3	4	5	6	
♈	27. 54	27. 33	27. 11	26. 49	26, 27	26. 05	25, 42	30
1	28. 51	28. 30	28, 08	27. 47	27. 25	27. 03	26. 40	29
2	29. 49	29. 27	29. 06	28. 45	28, 23	28, 01	27, 38	28
3	30, 46	30. 25	30, 04	29, 43	29, 21	28. 59	28, 37	27
4	31. 43	31. 23	31. 02	30, 41	30. 19	29, 58	29. 36	26
5	32. 42	32, 22	32. 00	31. 39	31, 18	30. 57	30. 35	25
6	33. 40	33. 20	32, 58	32. 38	32, 17	31. 56	31. 34	24
7	34. 38	34. 18	33. 58	33. 37	33. 16	32. 55	32. 33	23
8	35. 36	35. 17	34, 57	34. 36	34. 15	33. 54	33. 33	22
9	36, 34	36. 16	35, 56	35, 36	35. 15	34. 54	34, 33	21
10	37, 33	37. 15	36. 55	36. 35	36. 15	35, 54	35, 33	20
11	38. 33	38, 14	37, 54	37. 35	37. 15	36. 54	36. 33	19
12	39. 32	39. 14	38. 54	38. 35	38. 15	37. 55	37, 34	18
13	40, 31	40. 13	39. 54	39. 35	39. 15	38. 56	38. 35	17
14	41. 31	41. 13	40, 54	40, 35	40, 16	39. 57	39, 36	16
15	42. 31	42. 13	41. 54	41. 36	41, 17	40. 58	40. 38	15
16	43. 31	43, 13	42, 54	42. 36	42, 18	41. 59	41. 39	14
17	44. 31	44, 13	43, 55	43. 37	43. 19	43. 00	42. 40	13
18	45. 31	45, 14	44. 56	44. 38	44. 20	44. 01	43, 42	12
19	46. 32	46. 14	45. 57	45. 39	45, 21	45. 03	44. 44	11
20	47. 32	47, 15	46. 58	46, 40	46, 23	46. 05	45. 46	10
21	48. 33	48. 16	47. 59	47, 42	47, 25	47. 07	46. 49	9
22	49, 34	49. 17	49. 00	48, 44	48. 27	48. 09	47. 52	8
23	50. 35	50. 18	50. 02	49, 46	49. 29	49. 12	48. 55	7
24	51, 36	51. 20	51, 04	50, 48	50. 32	50, 15	49. 58	6
25	52. 38	52. 22	52. 06	51. 51	51. 35	51. 18	51. 02	5
26	53. 40	53. 24	53, 09	52. 54	52. 38	52, 22	52. 06	4
27	54, 42	54, 27	54. 12	53. 57	53. 42	53, 26	53, 10	3
28	55. 44	55. 29	55, 15	55, 00	54. 45	54, 30	54. 14	2
29	56. 46	56. 32	56. 18	56. 03	55, 49	55. 34	55, 18	1
♓ 30	57, 48	57. 35	57, 21	57. 07	56. 53	56. 38	56. 23	0

♈ South Latitude ♎ 180 Adde.

0	1	2	3	4	5	6	
0	28. 16	28. 37	28, 58	29, 19	29, 40	30. 01	30
1	29, 13	29. 34	29. 55	30. 16	30. 37	30. 57	29
2	30. 10	30, 31	30. 52	31. 13	31. 34	31. 54	28
3	31. 07	31, 28	31. 49	32. 10	32. 31	32. 51	27
4	32. 05	32. 25	32. 46	33. 07	33, 27	33. 47	26
5	33. 03	33. 23	33. 43	34, 04	34. 24	34, 44	25
6	34, 01	34. 21	34. 41	35. 01	35. 21	35. 41	24
7	34, 59	35. 19	35. 39	35. 58	36. 18	36. 38	23
8	35. 57	36, 17	36, 37	36. 56	37. 15	37, 35	22
9	36. 56	37, 15	37. 35	37. 54	38. 13	38. 32	21
10	37. 54	38. 13	38, 33	38, 52	39. 11	39. 29	20
11	38. 53	39. 12	39 31	39, 50	40. 09	40. 27	19
12	39. 52	40. 11	40. 30	40. 48	41. 07	41. 25	18
13	40. 51	41. 10	41. 28	41, 46	42. 05	42. 23	17
14	41. 50	42. 09	42, 27	42, 45	43, 03	43. 21	16
15	42. 49	43. 08	43. 26	43, 44	44, 02	44. 19	15
16	43. 49	44. 07	44, 25	44, 43	45. 00	45, 17	14
17	44. 49	45, 06	45, 24	45. 42	45. 59	46. 15	13
18	45. 49	46, 06	46. 23	46. 41	46. 58	47. 14	12
19	46. 49	47. 06	47, 23	47. 40	47. 57	48. 13	11
20	47. 49	48. 06	48. 23	48, 39	48, 56	49. 12	10
21	48. 50	49. 06	49. 23	49. 39	49, 55	50. 11	9
22	49, 50	50. 06	50, 23	50, 38	50, 54	51. 10	8
23	50. 51	51. 06	51, 23	51, 38	51. 53	52. 09	7
24	51. 52	52. 07	52, 23	52. 38	52. 53	53. 08	6
25	52. 53	53. 08	53. 23	53. 38	53, 53	54, 08	5
26	53. 55	54. 09	54. 24	54, 38	54. 53	55. 07	4
27	54. 56	55, 11	55. 25	55. 39	55, 53	56. 07	3
28	55, 58	56. 12	56. 26	56. 40	56, 54	57. 07	2
29	57. 00	57. 13	57. 27	57. 41	57. 54	58, 07	1
30	58. 03	58, 15	58, 29	58. 42	58. 55	59. 07	0

♈ *North Latitude.*							♎ 180 *Adde.*
0	1	2	3	4	5	6	
0 57. 48	57. 35	57. 21	57. 07	56, 53	56. 38	56, 23	30
1 58. 51	58. 38	58. 24	58, 10	57. 57	57. 42	57. 28	29
2 59. 53	59, 41	59, 27	59. 14	59. 01	58, 47	58, 33	28
3 60. 56	60. 44	60. 31	60, 18	60. 05	59. 52	59, 38	27
4 61. 59	61. 47	61, 35	61. 22	61, 10	60, 57	60. 44	26
5 63. 03	62. 51	62. 39	62, 27	62, 15	62. 02	61. 50	25
6 64. 06	63. 55	63, 43	63, 32	63, 20	63. 08	62. 56	24
7 65, 09	64. 59	64, 47	64. 37	64, 25	64. 13	64. 02	23
8 66. 13	66 03	65, 52	65. 42	65. 30	65. 19	65. 08	22
9 67, 17	67. 07	66. 57	66. 47	66. 36	66. 25	66, 14	21
10 68. 21	68. 11	68. 02	67. 52	67. 42	67, 31	67, 21	20
11 69, 25	69. 16	69. 07	68. 57	68. 48	68. 38	68. 28	19
12 70. 29	70. 21	70, 12	70. 03	69. 54	69. 45	69, 35	18
13 71. 34	71, 26	71, 17	71. 09	71. 00	70. 51	70. 42	17
14 72. 38	72. 31	72, 22	72, 15	72, 06	71. 58	71, 49	16
15 73, 42	73. 36	73. 28	73, 21	73. 13	73. 05	72. 57	15
16 74. 47	74, 41	74. 33	74, 27	74. 19	74. 12	74. 04	14
17 75, 52	75. 46	75. 39	75. 33	75, 26	75. 19	75. 12	13
18 76. 57	76. 51	76. 45	76. 39	76. 33	76. 27	76, 20	12
19 78. 02	77, 56	77, 51	77, 45	77. 40	77. 34	77. 28	11
20 79. 07	79, 02	78, 57	78, 52	78, 47	78. 41	78. 36	10
21 80. 12	80, 08	80, 03	79, 59	79. 54	79. 49	79. 44	9
22 81, 17	81. 13	81. 09	81. 05	81. 01	80. 56	80. 52	8
23 82. 22	82, 18	82. 15	82. 11	82. 08	82. 04	82. 00	7
24 83. 18	83. 24	83. 21	83. 18	83. 15	83, 12	83. 09	6
25 84, 33	84, 30	84. 27	84. 25	84. 22	84. 20	84. 17	5
26 85. 38	85. 36	85. 33	85. 32	85. 29	85, 28	85. 23	4
27 86. 44	86, 42	86. 40	86. 39	86, 37	86, 36	86, 34	3
28 87. 49	87. 48	87, 46	87, 46	87, 44	87, 44	87. 42	2
29 88. 55	88, 54	88. 53	88. 53	88. 52	88. 52	88, 51	1
30 90. 00	90. 00	90, 00	90. 00	90. 00	90. 00	90. 00	0

♊ *South Latitude.*				♐ 180 *Adde*				
	0	1	2	3	4	5	6	
0		58. 02	58. 15	58. 29	58. 42	58. 55	59. 07	30
1		59. 04	59. 17	59, 30	59. 43	59. 55	60. 07	29
2		60. 06	60. 19	60. 31	60, 44	60. 56	61. 08	28
3		61, 09	61. 21	61, 33	61. 46	61. 57	62. 09	27
4		62. 11	62. 23	62. 35	62. 48	62. 58	63. 09	26
5		63. 14	63, 25	63. 37	63. 50	63. 59	64, 10	25
6		64. 17	64, 28	64. 39	64. 52	65. 01	65. 11	24
7		65. 20	65. 31	65, 41	65. 54	66. 02	66. 12	23
8		66, 23	66. 34	66. 44	66. 56	67. 04	67. 13	22
9		67. 27	67. 37	67. 46	67, 58	68, 06	68, 15	21
10		68. 30	68. 40	68. 49	68. 59	69. 07	69. 16	20
11		69. 34	69, 43	69. 52	70, 01	70. 09	70, 17	19
12		70. 38	70. 46	70, 55	71. 03	71. 11	71. 19	18
13		71. 42	71. 49	71. 58	72. 05	72, 13	72. 21	17
14		72. 46	72. 53	73. 01	73. 08	73, 15	73. 23	16
15		73, 50	73, 57	74. 04	74. 11	74. 18	74, 25	15
16		74. 54	75. 01	75. 07	75. 14	75, 20	75. 27	14
17		75. 58	76, 05	76. 11	76, 17	76. 23	76. 29	13
18		77, 03	77. 09	77. 15	77. 20	77. 26	77. 31	12
19		78. 07	78. 13	78. 18	78. 23	78, 28	78. 33	11
20		79. 12	79. 17	79, 21	79. 26	79. 31	79. 35	10
21		80. 17	80, 21	80, 25	80. 29	80. 34	80. 38	9
22		81. 21	81. 25	81. 28	81. 32	81. 36	81. 40	8
23		82. 25	82, 29	82, 32	82. 35	82. 39	82. 42	7
24		83. 30	83. 33	83. 36	83. 39	83. 42	83, 45	6
25		84. 35	84. 37	84. 40	84. 42	84 45	84. 47	5
26		85. 40	85. 41	85. 44	85. 45	85. 48	85, 49	4
27		86. 45	86, 46	86, 48	86, 49	86. 51	86. 52	3
28		87. 50	87. 50	87. 52	87. 52	87. 54	87. 54	2
29		88. 55	88. 55	88. 56	88. 56	88. 57	88. 57	1
30		90, 00	90, 00	90, 00	90. 00	90. 00	90. 00	0

♋ *North Latitude.* ♈ 180 *Adde*

	0	1	2	3	4	5	6	
0	90.00	90.00	90.00	90.00	90.00	90.00	90.00	30
1	91.05	91.06	91.07	91.07	91.07	91.08	91,09	29
2	92.11	92.12	92.14	92.14	92.15	92.16	92,18	28
3	93.16	93.18	93.20	93.21	93.23	93.24	93,26	27
4	94.22	94.24	94.27	94.28	94.30	94.32	94.37	26
5	95.27	95.30	95.33	95.35	95.38	95.40	95.43	25
6	96.32	96.36	96.39	96.42	96.45	96.48	96.51	24
7	97.38	97.42	97.45	97.49	97.52	97.56	98,00	23
8	98.43	98.47	98.51	98.55	99.00	99.04	99.08	22
9	99.48	99.52	99.57	100.01	100.07	100.12	100,16	21
10	100.53	100.58	101.03	101.08	101.14	101.19	101.24	20
11	101.58	102.04	102.09	102.15	102.21	102.26	102.32	19
12	103.03	103.09	103.15	103.21	103.27	103.33	103.40	18
13	104.08	104.14	104.21	104.27	104.34	104.41	104.48	17
14	105.13	105.19	105.27	105.33	105.40	105.48	105.56	16
15	106.17	106.24	106.33	106.39	106.47	106.55	107.03	15
16	107.22	107.29	107.38	107.45	107.53	108.02	108.11	14
17	108.26	108.34	108.42	108.51	108.59	109.09	109.18	13
18	109.31	109.39	109.48	109.57	110.05	110.15	110.25	12
19	110.35	110.44	110.53	111.03	111.12	111,22	111.32	11
20	111.39	111.49	111.58	112.08	112.18	112.29	112.39	10
21	112,43	112.53	113.03	113.13	113.24	113.35	113.46	9
22	113.47	113.57	114.08	114.18	114.30	114.41	114.53	8
23	114.51	115.01	115.13	115.23	115.35	115.47	115.58	7
24	115.54	116.05	116.17	116 28	116.41	116.52	117.04	6
25	116.57	117.09	117.21	117.33	117.46	117.58	118.10	5
26	118.01	118.13	118.25	118.38	118.51	119.03	119.16	4
27	119.04	119.16	119.29	119.42	119.55	120.08	120,22	3
28	120.07	120.19	120.33	120.46	120.59	121.13	121.27	2
29	121.09	121.22	121.36	121.50	122.03	122.18	122.32	1
30	122.12	122.25	122.39	122.53	123.07	123.22	123.37	0

♋ *South Latitude.* ♈ 180 *Adde*

	0	1	2	3	4	5	6	
0		90.00	90,00	90,00	90.00	90,00	90.00	30
1		91.05	91.05	91.04	91.04	91.04	91,04	29
2		92.10	92.10	92.08	92,07	92.07	92.07	28
3		93.15	93.14	93.12	93.11	93.11	93.08	27
4		94.20	94,19	94,16	94.15	94.15	94.11	26
5		95,25	95.23	95,20	95.18	95,18	95.13	25
6		96.30	96.27	96.24	96,21	96.21	96.15	24
7		97,35	97.31	97,28	97.25	97.25	97.18	23
8		98.39	98.35	98.32	98.28	98.28	98.20	22
9		99.44	99.39	99.36	99.31	99.31	99.22	21
10		100.48	100.43	100.39	100.34	100.34	100.25	20
11		101.53	101.47	101.42	101.37	101.37	101.27	19
12		102.57	102,51	102.45	102.40	102 40	102.29	18
13		104.02	103.55	103.49	103.43	103.43	103.31	17
14		105.06	104.59	104.52	104.46	104.46	104.33	16
15		106,10	106.03	105,56	105.49	105.49	105,35	15
16		107.14	107.07	106.59	106.52	106.52	106.37	14
17		108.17	108.11	108.02	107.55	107 55	107.39	13
18		109,22	109,14	109.05	108,57	108,57	108.41	12
19		110.26	110.17	110.08	110.00	110.00	109.43	11
20		111,30	111.20	111.11	111,02	111.02	110.44	10
21		112.33	112.23	112.14	112,04	112.04	111,45	9
22		113,37	113.26	113.16	113,06	113.06	112.47	8
23		114.40	114.29	114,19	114,08	114.08	113.48	7
24		115.43	115.32	115.21	115.10	115.10	114,49	6
25		116,46	116,35	116.23	116.12	116.12	115.50	5
26		117.49	117.37	117.25	117.14	117.14	116 51	4
27		118,51	118.39	118.27	118.15	118.15	117.51	3
28		119.54	119.41	119.29	119.16	119,16	118.52	2
29		120.56	120.43	120.30	120.17	120.17	119,53	1
30		121,58	121.45	121.31	121.18	121.18	120 53	0

♑ *North Latitude.* ♒ 180 *Adde*

	0	1	2	3	4	5	6	
0	122.12	122.25	122.39	122.53	123.07	123.22	123.37	30
1	123.14	123.28	123.42	123.57	124.11	124.26	124.42	29
2	124.16	124.31	124.45	125.00	125.15	125.30	124.46	28
3	125.18	125.33	125.48	126.03	126.18	126.34	126.50	27
4	126.20	126.36	126.51	127.06	127.22	127.38	127.54	26
5	127.22	127.38	127.54	128.09	128.25	128.42	128.58	25
6	128.24	128.40	128.56	129.12	129.28	129.45	130.02	24
7	129.25	129.42	129.58	130.14	130.31	130.48	131.05	23
8	130.26	130.43	131.00	131.16	131.33	131.51	132.08	22
9	131.27	131.44	132.01	132.18	132.35	132.53	133.11	21
10	132.28	132.45	133.02	133.20	133.37	133.55	134.14	20
11	133.28	133.46	134.03	134.21	234.39	134.57	135.16	19
12	134.29	134.47	135.04	135.22	135.40	135.59	136.18	18
13	135.29	135.47	136.05	136.23	136.41	137.00	137.20	17
14	136.29	136.47	137.06	137.24	137.42	138.01	138.21	16
15	137.29	137.47	138.06	138.24	138.43	139.02	139.22	15
16	138.29	138.47	139.06	139.25	139.44	140.03	140.24	14
17	139.28	139.47	140.06	140.25	140.45	141.04	141.25	13
18	140.28	140.46	141.06	141.25	141.45	142.05	142.26	12
19	141.27	141.46	142.06	142.25	142.45	143.06	143.27	11
20	142.26	142.45	143.05	143.25	143.45	144.06	144.27	10
21	143.25	143.44	144.04	144.24	144.45	145.06	145.27	9
22	144.23	144.43	145.03	145.24	145.45	146.06	146.27	8
23	145.22	145.42	146.02	146.23	146.44	147.05	147.27	1
24	146.20	146.40	147.01	147.22	147.43	148.04	148.26	6
25	147.18	147.39	148.00	148.21	148 42	149.03	149.25	5
26	148.16	148.37	148.58	149.19	149.41	150.02	150.24	4
27	149.14	149.35	149.56	150.17	150.39	151.01	151,23	3
28	150.11	150.33	150.54	151.15	151.37	151.59	152.22	2
29	151.09	151.30	151.52	152.13	152.35	152.57	153.20	1
30	152.06	152.27	152.49	153.11	153.33	153.55	154.18	0

♌ *South Latitude* ♒ 180 *Adds.*

0	1	2	3	4	5	6	
0	121.58	121.45	121.31	121.18	121.05	120 53	30
1	123.00	122.47	122.33	122.19	122.06	121.53	29
2	124.02	123.48	123 34	123.20	123.06	122.53	28
3	125.03	124.49	124.35	124.21	124.07	123.53	27
4	126.05	125.51	125.36	125.22	125.07	124.53	26
5	127.07	126.52	126.37	126.22	126.07	125.52	25
6	128.08	127.53	127.37	127.22	127.07	126.52	24
7	129.09	128.54	128.37	128.22	128.07	127.51	23
8	130.10	129.54	129.37	129.22	129.06	128.50	22
9	131.10	130.54	130.37	130.21	130.05	129.49	21
10	132.11	131.54	131 37	131.22	131 04	130.48	20
11	133.11	132.54	132.37	132.20	132.03	131.47	19
12	134.11	133.54	133.37	133.19	133.02	132.46	18
13	135.11	134.54	134.36	134.18	134.01	133.45	17
14	136.11	135.53	135.35	135.17	135 00	134 43	16
15	137.10	136.52	136.34	136 16	135.58	135.41	15
16	138.10	137.51	137.33	137.15	136.57	136.39	14
17	139.09	138.50	138 32	138 14	137 55	137.37	13
18	140.08	139.49	139.30	139.13	138.53	138 35	12
19	141.07	140.48	140 29	140.10	139.51	139.33	11
20	142.06	141 47	141.27	141.08	140.49	140.31	10
21	143.04	142.45	142.25	142.06	141.47	141.28	9
22	144 03	143.43	143 23	143.04	142.45	142.25	8
23	145.01	144.41	144.21	144.02	143 42	143.22	7
24	145.59	145.39	145.19	144.59	144.39	144 19	6
25	146.57	146.37	146.17	145 56	145.36	145.16	5
26	147.55	147.35	147.14	146.53	146 33	146.13	4
27	148.53	148.32	148.11	147.50	147.29	147.09	3
28	149.50	149.29	149 08	148.47	148 26	148.06	2
29	150.47	150.26	150.05	149.44	149 23	149.03	1
30	151.44	151.23	151 02	150 41	150.20	149.59	0

♏ *North Latitude.* ♓ 180 *Adde*

	0	1	2	3	4	5	6	
0	152.06	152.27	152.49	153.11	153.33	153.55	154.18	30
1	153.04	153.25	153.47	154.09	154.31	154.53	155.16	29
2	154.01	154.22	154.44	155,06	155.29	155.51	156.14	28
3	154.58	155.19	155.41	156.03	156.26	156.49	157.12	27
4	155.54	156.16	156.39	157.01	157.24	157.47	158,10	26
5	156.51	157.13	157.36	157.58	158.21	158.44	159.08	25
6	157.47	158.10	158.33	158.55	159.18	159.41	160.05	24
7	158.44	159.07	159.30	159.52	160.15	160.38	161.02	23
8	159.40	160.04	160.27	160.49	161.12	161.35	161.59	22
9	160.37	161.00	161.23	161.46	162.09	162.32	162.56	21
10	161.33	161.56	162.19	162.42	163.06	163.29	163.53	20
11	162.29	162.52	163.15	163.38	164.02	164.25	164.49	19
12	163.25	163.48	164.11	164.34	164.58	165.21	165.45	18
13	164.20	164.44	165.07	165.30	165.54	166.18	166.42	17
14	165.16	165.40	166.06	166.26	166.50	167.14	167.38	16
15	166.12	166,35	166.59	167.20	167.46	168.10	168.34	15
16	167.07	167.31	167.55	168.18	168.42	169.06	169.30	14
17	168.03	168.27	168 51	169.14	169.38	170.02	170.26	13
18	168.58	169,23	169.46	170.09	170,33	170.57	171.21	12
19	169.54	170,18	170.42	171.05	171.29	171.53	172.17	11
20	170.49	171,13	171.37	172.01	172.25	172.39	173.13	10
21	171.44	172.08	172.32	172.56	173.20	173.44	174.08	9
22	172.39	173.03	173.27	173.51	174.15	174.39	175.03	8
23	173.35	173.58	174.22	174.46	175.10	175.34	175.58	7
24	174.30	173.53	175.17	175.41	176.05	176.29	176.54	6
25	175.25	175.48	176.12	176.36	177.00	177.24	177.48	5
26	176.20	176.43	177.07	177.31	177,55	178.19	178,43	4
27	177.15	177.38	178.02	178.26	178.50	179.14	179.38	3
28	178.10	178.33	178.57	179.21	179.45	180.09	180.33	2
29	179.05	179.28	179.52	180.16	180.40	181.04	181.28	1
30	180.00	180.23	180.47	181.11	181.35	181.59	182.23	0

♍ *South Latitude* ♎ 180 *Adde.*

♌ 0	1	2	3	4	5	6	
0	151.44	151.23	151.02	150 41	150.20	149 59	30
1	152 41	152.20	151.59	151.38	151.16	150.55	29
2	153.38	153.17	152.55	152 34	152 12	151,50	28
3	154 35	154 13	153.51	153.30	153.08	152.47	27
4	155.32	155.10	154.48	154.26	154.04	153.43	26
5	156.29	156.07	155.44	155.22	155.00	154.39	25
6	157.25	157.03	156.40	156 18	155.56	155 34	24
7	158.22	157.59	157.36	157.14	156.52	156.30	23
8	159.18	158.55	158 32	158.10	157.48	157 26	22
9	160 14	159.51	159.28	159.06	158.43	158 21	21
10	161.10	160.47	160 24	160.02	159.39	159.17	20
11	162.06	161.43	161 20	160.58	160.35	160.12	19
12	163.02	162 39	162.16	161.53	161.30	161.07	18
13	163.58	163 35	163.12	162.49	162.25	162.02	17
14	164.53	164.30	164.07	163.44	163.20	162.57	16
15	165.48	165.25	165 02	164.39	164.15	163.52	15
16	166.44	166.21	165 57	165.34	165.10	164.47	14
17	167.40	167.17	166.52	166.29	166.05	165 42	13
18	168.35	168.12	167.47	167.24	167.00	166.37	12
19	169.31	169.07	168 43	168.19	167.55	167.32	11
20	170.26	170.02	169.38	169.14	168.50	168.27	10
21	171.21	170.57	170.33	170.09	169.45	169.22	9
22	172.16	171.52	171.28	171.04	170.40	170.17	8
23	173.11	172.47	172.23	171.59	171.35	171.12	7
24	174.06	173.42	173.18	172.54	172 30	172.07	6
25	175.02	174.38	174.14	173.50	173.26	173.02	5
26	175.57	175.33	175.09	174.45	174.21	173.57	4
27	176 52	176.28	176.04	175.40	175.16	174 52	3
28	177.47	177.23	176.59	176.35	176.11	175.47	2
29	178 42	178.18	177.54	177.30	177.06	176.42	1
30	179 27	179 13	178.49	178 25	178.01	177.37	●

Poles.	1	2	3	4	5	6	7
1	1	2	3	4	5	6	7
2	2	4	6	8	10	13	14
3	3	6	9	13	16	19	22
4	4	8	13	17	21	25	30
5	5	10	16	21	26	32	37
6	6	13	19	25	32	38	44
7	7	15	22	30	37	44	52
8	8	17	25	34	42	51	59
9	9	19	29	38	48	57	1. 07
10	11	21	32	42	53	1. 04	1. 14
11	12	23	35	47	58	1. 10	1 22
12	13	25	38	51	1. 04	1. 17	1. 30
13	14	28	42	56	1, 09	1. 23	1. 37
14	15	30	45	1, 00	1. 15	1. 30	1. 45
15	16	32	48	1. 04	1. 21	1. 37	1. 53
16	17	34	52	1. 09	1. 26	1. 44	2. 01
17	18	37	55	1. 14	1. 32	1. 50	2. 09
18	19	39	59	1, 18	1, 38	1, 57	2. 17
19	21	41	1. 02	1, 23	1. 44	2, 04	2. 25
20	22	44	1. 06	1. 27	1, 49	2. 12	2. 34
21	23	46	1. 09	1, 32	1. 55	2. 19	2. 42
22	24	49	1, 13	1. 37	2. 02	2, 26	2. 51
23	25	51	1. 17	1, 42	2. 08	2. 33	2. 59
24	27	53	1, 20	1. 47	2, 14	2. 41	3. 01
25	28	56	1 24	1. 52	2, 20	2 49	3. 17
26	29	59	1. 28	1. 57	2. 27	2. 56	3. 26
27	31	1, 01	1, 32	2. 03	2. 33	3. 04	3. 35
28	32	1. 04	1. 36	2. 08	2. 40	3. 12	3. 45
29	33	1. 07	1. 40	2. 13	2. 47	3. 20	3. 54
30	35	1, 09	1. 44	2, 19	2. 54	3. 29	4. 04
31	36	1. 12	1. 48	2. 24	3. 01	3. 37	4. 14
32	37	1, 15	1, 53	2. 30	3. 08	3. 46	4. 24

Degrees of Declination.

Elevation	8	9	10	11	12	13	14
1	0. 08	0. 09	0. 11	0. 12	0. 13	0. 14	0. 15
2	0. 17	0. 19	0. 21	0. 23	0. 25	0. 28	0. 30
3	0. 25	0. 29	0. 32	0. 35	0. 38	0. 42	0. 45
4	0. 34	0. 38	0. 42	0. 47	0. 51	0. 56	1. 00
5	0. 42	0. 48	0. 53	0. 58	1. 04	1. 09	1. 15
6	0. 51	0. 57	1. 04	1. 10	1. 17	1. 23	1. 30
7	0. 59	1. 07	1. 14	1. 22	1. 30	1. 37	1. 45
8	1. 08	1. 16	1. 25	1. 34	1. 43	1. 52	2. 00
9	1. 16	1. 26	1. 36	1. 46	1. 56	2. 06	2. 16
10	1. 25	1. 36	1. 47	1. 58	2. 09	2. 20	2. 31
11	1. 34	1. 46	1. 58	2. 10	2. 22	2. 34	2. 47
12	1. 43	1. 56	2. 09	2. 22	2. 35	2. 49	3. 02
13	1. 52	2. 06	2. 20	2. 34	2. 49	3. 03	3. 18
14	2. 00	2. 16	2. 31	2. 47	3. 02	3. 18	3. 34
15	2. 10	2. 26	2. 42	2. 59	3. 16	3. 33	3. 50
16	2. 19	2. 36	2. 54	3. 12	3. 30	3. 48	4. 06
17	2. 28	2. 47	2. 05	3. 24	3. 44	4. 03	4. 22
18	2. 37	2. 57	2. 17	3. 37	3. 58	4. 18	4. 39
19	2. 46	3. 08	3. 29	3. 50	4. 17	4. 34	4. 55
20	2. 56	3. 18	3. 41	4. 03	4. 26	4. 49	5. 12
21	3. 06	3. 29	3. 53	4. 17	4. 41	5. 05	5. 30
22	3. 15	3. 40	4. 05	4. 30	4. 56	5. 21	5. 47
23	3. 25	3. 51	4. 18	4. 44	5. 11	5. 37	6. 07
24	3. 35	4. 03	4. 30	4. 58	5. 26	5. 54	6. 22
25	3. 45	4. 14	4. 43	5. 12	5. 41	6. 11	6. 41
26	3. 56	4. 26	4. 56	5. 26	5. 57	6. 28	6. 59
27	4. 06	4. 38	5. 09	5. 41	6. 13	6. 45	7. 18
28	4. 17	4. 50	5. 23	5. 56	6. 29	7. 03	7. 37
29	4. 28	5. 02	5. 37	6. 11	6. 46	7. 21	7. 57
30	4. 39	5. 15	5. 51	6. 27	7. 03	7. 40	8. 17
31	4. 51	5. 28	6. 05	6. 42	7. 20	7. 58	8. 37
32	5. 02	5. 41	6. 20	6. 59	7. 38	8. 18	8. 58

Degrees of Declination.

Poles	15	16	17	18	19	20	21
1	00. 16	00. 17	00. 18	00. 19	00. 21	00. 22	00. 23
2	00. 32	00. 34	00. 37	00. 39	00. 41	00. 44	00. 46
3	00. 48	00. 52	00. 55	00. 59	01. 02	01. 06	01. 09
4	01, 04	01. 09	01. 14	01, 18	01. 23	01. 27	01. 32
5	01, 21	01. 16	01. 32	01, 38	01. 44	01. 49	01. 55
6	01. 37	01. 44	01. 50	01. 57	02. 04	02. 12	02. 19
7	01. 57	02. 01	02. 09	02. 17	02. 25	02. 34	02. 42
8	02. 09	02. 19	02. 28	02, 37	02. 46	02. 56	03. 06
9	02. 26	02. 36	02. 47	02. 57	03. 08	03, 18	03. 29
10	02, 42	02. 54	03. 05	03. 17	03, 29	03. 41	03. 53
11	02. 59	03, 12	03. 24	03. 37	03. 50	04, 03	04, 17
12	03. 16	03. 30	03. 44	03. 58	04. 12	04. 26	04. 41
13	03, 33	03. 48	04. 03	04. 18	04. 34	04. 49	05, 05
14	03. 50	04. 06	04. 22	04. 39	04. 55	05. 12	05. 30
15	04. 07	04. 24	04, 42	05. 00	05. 18	05. 36	05. 54
16	04. 24	04. 43	05. 02	05. 21	05. 40	05. 59	06. 19
17	04. 42	05. 02	05. 22	05. 42	06. 02	06. 23	06. 44
18	05. 00	05. 21	05. 42	06. 04	06. 25	06. 47	07. 10
19	05. 18	05. 40	06. 03	06, 25	06. 49	07. 12	07. 36
20	05. 36	05, 59	06. 23	06, 47	07. 12	07. 37	08, 02
21	05. 54	06. 19	06. 44	07. 10	07. 36	08. 02	08. 28
22	06, 13	06. 39	07. 06	07. 33	08. 00	08. 27	08. 55
23	06. 32	06. 59	07. 27	07. 56	08. 24	08. 53	09. 22
24	06. 51	07. 20	07. 49	08. 19	08. 49	09. 19	09. 50
25	07, 11	07. 41	08. 12	08. 43	09. 14	09. 46	10, 19
26	07. 31	08. 02	08. 35	09. 07	09. 40	10, 14	10. 47
27	07. 51	08. 24	08. 58	09, 32	10. 06	10. 41	11. 17
28	08. 11	08. 46	09, 21	09. 57	10, 33	11. 09	11. 47
29	08, 32	09. 09	09, 45	10. 23	11. 10	11. 38	12. 17
30	08. 54	09. 32	10, 10	10, 49	11. 28	12. 08	12, 48
31	09, 16	09. 55	10. 35	11, 16	11. 56	12. 38	13. 20
32	09. 38	10. 19	11. 01	11. 43	12. 25	13 09	13. 53

Degrees of Declination.

Elevation	22	23	24	25	26	27	28
1	00. 24	00, 25	00, 27	00. 28	00. 29	00, 31	00. 32
2	00, 49	00, 51	00. 53	00, 56	00. 59	01. 01	01. 04
3	01. 13	01. 17	01, 20	01, 24	01. 28	01, 32	01. 36
4	01. 37	01. 42	01, 47	01. 52	01. 57	02. 03	02, 08
5	02, 02	02, 08	02. 14	02, 20	02. 27	02, 33	02, 40
6	02. 26	02. 33	02, 41	02, 49	02. 56	03. 04	03, 12
7	02, 51	02. 59	03. 08	03. 17	03. 26	03, 35	03. 45
8	03. 15	03. 25	03. 35	03, 45	03, 56	04, 06	04, 17
9	03. 40	03. 51	04. 03	04. 14	04. 26	04, 38	04. 50
10	04. 05	04. 18	04. 30	04, 43	04. 56	05. 09	05. 23
11	04. 30	04. 44	04, 58	05, 12	05, 27	05. 41	05, 56
12	04, 56	05. 11	05. 26	05. 41	05. 57	06. 13	06. 29
13	05. 21	05. 38	05. 54	06. 11	06. 28	06. 45	07, 03
14	05. 47	06. 05	06, 22	06. 41	06. 59	07. 18	07. 33
15	06. 13	06. 32	06, 51	07. 11	07, 31	07, 51	08, 11
16	06. 39	06. 59	07. 20	07. 41	08. 03	08. 24	08, 46
17	07. 06	07. 27	07. 49	08. 12	08, 35	08. 58	09, 21
18	07. 33	07. 56	08. 19	08, 43	09. 07	09. 32	09. 57
19	08. 00	08. 24	08. 49	09. 14	09. 40	10. 06	10, 33
20	08, 27	08. 53	09. 19	09, 46	10. 14	10, 41	11. 09
21	08, 55	09. 23	09, 50	10, 19	10, 47	11, 17	11. 46
22	09, 24	09. 53	10. 22	10. 52	11. 22	21, 53	12. 24
23	09. 53	10. 23	10. 54	11. 25	11. 57	12, 29	13. 03
24	10. 22	10. 54	11. 26	11. 29	12. 33	13. 07	13. 42
25	10, 52	11, 25	11. 59	12, 34	13. 09	13. 43	14. 21
26	11, 22	11, 57	12. 33	13. 09	13. 46	14. 23	15. 02
27	11. 53	12, 29	13. 07	13, 45	14, 23	15. 03	15. 44
28	12. 24	13. 03	13. 42	14. 21	15. 02	15. 43	16. 25
29	12. 56	13, 37	14. 17	14. 59	15. 41	16. 24	17. 08
30	13. 29	14 11	14. 54	15. 37	16. 21	17, 07	17. 53
31	14. 03	14. 47	15, 31	16. 16	17. 02	17, 50	18, 38
32	14. 37	15. 23	16. 00	16. 56	17. 45	18. 34	19. 24

Degrees of Declination.

Poles	29	30	31	32	33	34	35
1	00. 33	00, 35	00. 36	00. 37	00, 39	00, 40	00, 42
2	01. 07	01. 09	01. 12	01, 15	01. 18	01, 21	01. 24
3	01. 40	01, 44	01. 48	01, 53	01, 57	02. 02	02, 06
4	02, 13	02. 19	02. 24	02. 30	02, 36	02. 42	02. 48
5	02, 47	02. 54	03. 01	03, 08	03. 15	03, 23	03. 31
6	03, 20	03. 29	03. 37	03, 46	03, 55	04. 04	04. 13
7	03. 54	04, 04	04. 14	04. 24	04 34	04. 45	04. 56
8	04, 28	04, 39	04. 51	05, 02	05. 14	05. 26	05. 39
9	05. 02	05. 15	05. 28	05. 41	05. 54	06. 08	06. 22
10	05, 37	05. 51	06. 05	06, 20	06. 35	06. 50	07, 06
11	06. 11	06. 27	06, 42	06, 59	07, 15	07. 32	07. 49
12	06. 46	07, 03	07. 20	07. 38	07. 56	08. 15	08, 34
13	07, 21	07, 40	07. 58	08. 18	08. 37	08. 58	09. 18
14	07. 56	08. 17	08. 37	08. 58	09, 19	09. 41	10, 03
15	08, 32	08. 54	09. 16	09. 38	10, 01	10. 25	10, 49
16	08, 08	09. 32	09. 55	10. 19	10. 44	11. 09	11. 35
17	09, 45	10. 10	10, 35	11. 01	11. 27	11. 54	12. 22
18	10. 23	10. 49	11. 16	11, 43	12. 11	12. 40	13. 09
19	11, 00	11, 28	11. 56	12. 25	12. 55	13. 26	13. 57
20	11. 38	12, 08	12. 38	13, 09	03. 40	14. 13	14. 46
21	12. 17	12, 48	13, 20	13, 53	14, 26	15. 00	15. 39
22	12. 56	13. 29	14. 03	14. 37	15. 13	15. 49	16. 27
23	13. 37	14. 11	14. 47	15. 23	16. 00	16. 38	17. 17
24	14. 17	14. 54	15. 31	16. 09	16, 48	17. 29	18. 10
25	14. 59	15. 37	16. 16	16, 56	17. 38	18, 20	19. 03
26	15. 41	16. 21	17. 02	17. 45	18. 28	19, 12	19, 58
27	16. 24	17. 06	17, 50	18, 34	19. 19	20, 06	20, 54
28	17. 08	17. 53	18. 38	19. 24	20. 12	21. 01	21, 51
29	17. 54	18. 40	19. 27	20. 16	21. 06	21, 57	22. 50
30	18, 40	19, 28	20, 18	21. 09	22. 01	22. 55	23. 51
31	19. 27	20, 18	21. 10	22. 03	22, 58	23. 55	24. 53
32	20. 16	21. 09	22. 03	22. 59	23. 56	24. 46	25. 57

Degrees of Declination.

Degrees of Declination.	Elevation 36	37	38	39	40	41	42
1	00. 44	00. 45	00. 47	00. 49	00. 50	00. 52	00. 54
2	01. 27	01. 31	01. 34	01. 37	01. 41	01. 44	01. 48
3	02. 11	02. 16	02. 21	02. 26	02. 31	02. 37	02. 42
4	02. 55	03. 01	03. 08	03. 15	03. 22	03. 29	03. 37
5	03. 39	03. 47	03. 55	04. 04	04. 13	04. 22	04. 31
6	04. 23	04. 33	04. 43	04. 52	05. 04	05. 15	05. 26
7	05. 07	05. 19	05. 30	05. 42	05. 55	06. 08	06. 21
8	05. 52	06. 05	06. 18	06. 32	06. 46	07. 01	07. 16
9	06. 36	06. 51	07. 06	07. 28	07. 38	07. 53	08. 12
10	07. 22	07. 38	07. 55	08. 13	08. 30	08. 49	09. 08
11	08. 07	08. 25	08. 44	09. 03	09. 23	09. 44	10. 05
12	08. 53	09. 13	09. 34	09. 55	10. 16	10, 39	11. 02
13	09. 39	10. 01	10. 14	10. 46	11. 10	11, 35	12, 00
14	10, 26	10. 50	11. 14	11. 39	12. 05	12 31	12, 58
15	11. 14	11. 39	12, 05	12. 32	13. 00	13, 28	13. 58
16	12, 02	12. 29	12, 57	13. 26	13, 55	14. 26	14. 58
17	12, 50	13, 19	13. 49	14. 20	14. 52	15. 25	15. 59
18	13. 39	14, 10	14. 42	15, 15	15. 49	16. 24	17. 01
19	14, 29	15. 02	15. 36	16, 11	16. 48	17. 25	18. 04
20	15, 20	15. 55	16. 31	17, 08	17. 47	18, 27	19. 08
21	16, 11	16. 49	17, 27	18. 07	18. 47	19, 30	20. 13
22	17. 05	17, 44	18. 24	19, 06	19. 49	20. 34	21. 20
23	17, 58	18, 39	19. 22	20, 06	20. 52	21. 39	22. 28
24	18, 52	19. 36	20. 21	21. 08	21. 56	22. 46	23. 38
25	19. 48	20, 34	21. 21	22. 11	23. 02	23. 55	24. 50
26	20. 45	21. 34	22. 24	23. 16	24. 10	25, 05	26. 03
27	21. 44	22. 35	23. 28	24. 22	25, 19	26. 17	27. 18
28	22. 43	23. 37	24. 33	25. 30	26, 30	27, 31	28. 36
29	23. 45	24. 41	25. 40	26, 40	27. 43	28. 48	29. 57
30	24. 48	25. 47	26. 49	27. 52	28. 59	30. 07	30. 19
31	25, 53	26, 55	28. 00	29. 07	30. 17	31. 29	32. 45
32	27. 00	28. 05	29, 13	30, 54	31. 31	32. 54	34. 1

Poles	43	44	45	46	47	48	49
1	00. 56	00. 58	01. 00	01. 02	01. 04	01. 07	01. 09
2	01. 52	01. 56	02. 00	02. 04	02. 09	02. 13	02. 18
3	02. 48	02. 54	03. 00	03. 07	03. 13	03. 20	03. 27
4	03. 44	03. 52	04. 01	04. 09	04. 18	04. 27	04. 37
5	04. 41	04. 51	05. 01	05. 12	05. 23	05. 35	05. 47
6	05. 37	05. 50	06. 02	06. 15	06. 28	06. 42	06. 57
7	06. 34	06. 49	07. 03	07. 18	07. 34	07. 50	08. 07
8	07. 32	07. 48	08. 05	08. 22	08. 40	08. 59	09. 18
9	08. 30	08. 48	09. 07	09. 26	09. 47	10. 08	10. 30
10	09. 28	09. 48	10. 09	10. 31	10. 54	11. 18	11. 42
11	10. 27	10. 49	11. 13	11. 37	12. 02	12. 28	12. 55
12	11. 26	11. 51	12. 16	12. 43	13. 11	13. 39	14. 09
13	12. 26	12. 53	13. 21	13. 50	14. 20	14. 51	15. 24
14	13. 27	13. 56	14. 26	14. 58	15. 30	16. 05	16. 40
15	14. 28	15. 00	15. 32	16. 07	16. 42	17. 19	17. 57
16	15. 31	16. 05	16. 40	17. 16	17. 54	18. 34	19. 16
17	16. 34	17. 10	17. 48	18. 27	19. 08	19. 51	20. 36
18	17. 38	18. 17	18. 58	19. 40	20. 23	21. 09	21. 57
19	18. 44	19. 25	20. 09	20. 53	21. 40	22. 29	23. 20
20	19. 50	20. 35	21. 21	22. 08	22. 58	23. 51	24. 45
21	20. 59	21. 46	22. 34	23. 25	24. 18	25. 14	26. 12
22	22. 08	22. 58	23. 50	24. 44	25. 40	26. 40	27. 42
23	23. 19	24. 12	24. 07	26. 05	27. 05	28. 08	29. 14
24	24. 32	25. 28	26. 26	27. 27	28. 31	29. 38	30. 48
25	25. 47	26. 46	27. 48	28. 52	30. 00	31. 12	32. 26
26	27. 03	28. 06	29. 11	30. 20	31. 32	32. 48	34. 08
27	28. 22	29. 29	30. 38	31. 51	33. 07	34. 28	35. 53
28	29. 44	30. 54	32. 07	33. 25	34. 46	36. 12	37. 42
29	31. 08	32. 20	33. 40	35. 02	36. 28	38. 00	39. 37
30	32. 35	33. 53	35. 16	36. 43	38. 15	39. 53	41. 37
31	33. 58	35. 28	36. 56	38. 29	40. 07	41. 52	43. 44
32	35. 38	37. 07	38. 40	40. 19	42. 04	43. 57	45. 57

Degrees of Declination.

Elevation	50	51	52	53	54	55	56
1	01. 12	01. 14	01. 17	01. 20	01. 23	01. 26	01. 29
2	02. 23	02. 28	02. 34	02. 39	02. 45	02. 51	02. 58
3	03. 35	03. 43	03. 51	03. 59	04. 08	04. 17	04. 27
4	04. 47	04. 57	05. 08	05. 19	05. 31	05. 44	05. 57
5	05. 59	06. 12	06. 26	06. 40	06. 55	07. 11	07. 27
6	07. 12	07. 27	07. 44	08. 01	08. 19	08. 38	08. 58
7	08. 25	08. 43	09. 02	09. 23	09. 44	10. 16	10. 29
8	09. 38	10. 00	10. 22	10. 45	11. 09	11. 35	12. 01
9	10. 53	11. 17	11. 42	12. 08	12. 35	13. 04	13. 35
10	12. 08	12. 35	13. 03	13. 32	14. 03	14. 35	15. 09
11	13. 24	13. 53	14. 24	14. 57	15. 31	16. 07	16. 45
12	14. 40	15. 13	15. 47	16. 23	17. 01	17. 40	18. 22
13	15. 58	16. 34	17. 11	17. 05	18. 32	19. 15	20. 01
14	17. 17	17. 56	18. 37	17. 19	20. 04	20. 52	21. 42
15	18. 37	19. 19	20. 04	20. 30	21. 38	22. 30	23. 24
16	19. 59	20. 44	21. 32	22. 22	23. 15	24. 10	25. 09
17	21. 22	22. 11	23. 02	23. 56	24. 53	25. 53	26. 57
18	22. 47	23. 39	24. 34	25. 33	26. 34	27. 39	28. 48
19	24. 14	25. 10	26. 09	27. 11	28. 17	29. 27	30. 41
20	25. 43	26. 43	27. 46	28. 53	30. 04	31. 19	32. 39
21	27. 14	28. 18	29. 26	30. 37	31. 54	33. 15	34. 41
22	28. 48	29. 56	31. 08	32. 25	33. 47	35. 14	36. 48
23	30. 24	31. 37	32. 54	34. 17	35. 45	37. 19	39. 00
24	32. 03	33. 21	34. 44	36. 13	37. 48	39. 29	41. 18
25	33. 46	45. 10	36. 39	38. 14	39. 56	41. 45	43. 44
26	35. 32	37. 03	38. 38	40. 20	42. 10	44. 09	46. 18
27	37. 23	39. 00	40. 42	42. 33	44. 42	46. 41	49. 04
28	39. 19	41. 02	42. 53	44. 53	47. 02	49. 24	52. 01
29	41. 21	43. 12	45. 12	47. 21	49. 44	52. 20	55. 16
30	43. 29	45. 29	47. 39	50. 01	52. 37	55. 32	58. 52
31	45. 44	47. 54	50. 16	52. 53	55. 48	59. 06	62. 58
32	48. 08	50. 30	53. 07	56. 01	59. 19	63. 10	67. 53

Degrees of Declination.

S.	D.	1	2	3	4	5	6
♈	0	000 00	000 00	000 00	000 00	000 00	000 00
	4	003 38	003 36	003 35	003 33	003 32	003 29
	8	007 17	007 14	007 10	007 07	007 04	007 00
	12	010 57	010 52	010 46	010 41	010 36	010 32
	16	014 37	014 30	014 23	014 17	014 10	014 04
	20	018 19	018 10	018 02	017 54	017 46	017 37
	24	022 03	021 52	021 42	021 33	021 23	021 13
	28	025 48	025 37	025 25	025 14	025 03	024 50
♉	2	029 36	029 23	029 10	028 57	028 44	028 30
	6	033 26	033 11	032 57	032 43	032 27	032 13
	10	037 19	037 03	036 47	036 32	036 15	035 59
	14	041 14	040 57	040 39	040 22	040 05	039 47
	18	045 13	044 54	044 36	044 17	043 59	043 40
	22	049 15	048 54	048 35	048 15	047 55	047 35
	26	053 18	052 57	052 37	052 16	051 54	051 33
♊	0	057 26	057 04	056 42	056 20	055 57	055 35
	4	061 37	061 13	060 50	060 28	060 04	059 41
	8	065 50	065 25	065 02	064 38	064 13	063 50
	12	070 05	069 40	069 16	068 51	068 26	068 02
	16	074 22	073 57	073 32	073 07	072 41	072 16
	20	078 41	078 16	077 50	077 24	076 59	076 33
	24	083 01	082 36	082 10	081 44	081 18	080 52
	28	087 23	086 57	086 31	086 04	085 38	085 12
♋	2	091 45	091 19	090 53	090 27	090 02	089 35
	6	096 07	095 41	095 15	094 48	094 23	093 57
	10	100 27	100 02	099 36	099 10	098 45	098 19
	14	104 47	104 22	103 57	103 32	103 06	102 41
	18	109 06	108 41	108 17	107 52	107 27	107 03
	22	113 23	112 58	112 35	112 11	111 47	111 23
	26	117 38	117 14	116 51	116 28	116 05	113 42
♌	0	121 50	121 28	121 06	120 44	120 21	119 59

S.	D.	1	2	3	4	5	6
♌	4	125 59	125 38	125 18	124 56	124 35	124 14
	8	130 06	129 45	129 26	129 06	128 46	128 26
	12	134 10	133 51	133 32	133 14	132 55	132 36
	16	138 11	137 54	137 37	137 19	137 02	136 45
	20	142 09	141 53	141 37	141 21	141 05	140 49
	24	146 05	145 51	145 37	145 22	145 07	144 51
	28	149 58	149 46	149 32	149 19	149 06	148 52
♍	2	153 49	153 38	153 26	153 15	153 03	152 51
	6	157 38	157 28	157 18	157 08	156 59	156 48
	10	161 25	161 16	161 08	161 00	160 52	160 43
	14	165 10	165 04	164 56	164 50	164 44	164 37
	18	168 54	168 49	168 43	168 38	168 34	168 29
	22	172 37	172 33	172 30	172 26	172 23	172 20
	26	176 19	276 17	176 16	176 14	176 12	176 10
♎	0	180 00	180 00	180 00	180 00	180 00	180 00
	4	183 41	183 43	183 44	183 46	183 48	183 50
	8	187 23	187 27	187 30	187 34	187 37	187 40
	12	191 06	191 11	191 17	191 22	191 26	191 31
	16	194 50	194 56	195 04	195 10	195 16	195 23
	20	198 35	198 44	198 52	199 00	199 08	199 17
	24	202 22	202 30	202 42	202 55	203 01	203 12
	28	206 11	206 22	206 34	206 45	206 57	207 09
♏	2	210 02	210 14	210 28	210 41	210 54	211 08
	6	213 55	214 09	214 23	214 38	214 53	215 09
	10	217 51	218 07	218 23	218 39	218 55	219 11
	14	221 49	222 06	222 23	222 41	222 58	223 15
	18	225 50	226 09	226 28	226 46	227 05	227 24
	22	229 54	230 15	230 34	230 54	231 14	231 34
	26	234 01	234 22	234 42	235 04	235 25	235 46
♐	0	238 10	238 38	238 54	239 16	239 39	240 01
	4	242 22	242 46	243 09	243 32	243 55	244 18

S.	D.	1		2		3		4		5		6	
♑	8	246	37	247	02	247	25	247	49	248	13	248	37
	12	250	54	251	19	251	43	252	08	252	33	252	57
	16	255	13	255	38	256	03	256	28	256	54	257	19
	20	259	33	259	58	260	24	260	50	261	15	261	41
	24	263	53	264	19	264	45	265	12	265	37	266	03
	28	268	15	268	41	269	07	269	33	269	59	270	25
♒	2	272	37	273	03	273	29	273	56	274	22	274	48
	6	276	59	277	24	277	50	278	16	278	42	279	08
	10	281	19	281	44	282	10	282	36	283	01	283	37
	14	285	38	286	03	286	28	286	53	287	19	287	44
	18	289	55	290	20	290	44	291	09	291	34	291	59
	22	294	10	294	35	294	58	295	22	295	47	296	10
	26	298	23	298	47	299	10	299	32	299	56	300	19
♓	0	302	34	302	56	303	18	303	40	304	03	304	25
	4	306	42	307	03	307	23	307	44	308	06	308	27
	8	310	45	311	06	311	25	311	45	312	05	312	25
	12	314	47	315	06	315	24	315	43	316	01	316	20
	16	318	46	319	03	319	21	319	38	319	55	320	13
	20	322	41	322	57	323	13	323	29	323	45	324	01
	24	326	34	326	49	327	03	327	17	327	33	327	47
	28	330	24	330	37	330	50	331	03	331	16	331	30
♈	2	334	12	334	23	334	35	334	46	334	57	335	10
	6	337	57	338	08	338	18	338	27	338	37	338	47
	10	341	41	341	50	341	58	342	06	342	14	342	23
	14	345	23	345	30	345	37	345	42	344	50	345	56
	18	349	03	349	08	349	14	349	19	349	24	349	28
	22	352	43	352	46	352	50	352	53	352	56	353	00
	26	356	22	356	24	356	25	356	27	346	28	356	31
	30	360	00	360	00	360	00	360	00	360	00	360	00

S.	D.	7	8	9	10	11	12
♈	0	000 00	000 00	000 00	000 00	000 00	000 00
	4	003 28	003 26	003 24	003 23	003 21	003 20
	8	006 57	006 53	006 50	006 47	006 43	006 40
	12	009 26	010 21	010 16	010 11	010 06	010 00
	16	013 57	013 50	013 43	013 36	013 30	013 22
	20	017 29	017 20	017 12	017 03	016 55	016 46
	24	021 03	020 52	020 43	020 32	020 23	020 12
	28	024 39	024 28	024 16	024 04	023 52	023 40
♉	2	028 18	028 04	027 51	027 38	027 24	027 11
	6	031 59	031 43	031 29	031 14	030 59	030 44
	10	035 43	035 27	035 11	034 54	034 38	034 21
	14	039 30	039 12	038 55	038 37	038 19	038 01
	18	043 21	043 02	042 43	042 24	042 05	041 45
	22	047 15	046 55	046 34	046 14	045 54	045 32
	26	051 12	050 50	050 29	050 07	049 46	049 23
♊	0	055 12	054 50	054 28	054 05	053 42	053 19
	4	059 17	058 54	058 31	058 07	057 43	057 19
	8	063 25	063 02	062 37	062 12	061 48	061 22
	12	067 36	067 12	066 47	066 21	065 56	065 30
	16	071 51	071 25	070 59	070 32	070 07	069 41
	20	076 07	075 41	075 13	074 48	074 21	073 55
	24	080 25	079 59	079 32	079 05	078 38	078 11
	28	084 45	084 19	083 52	083 25	082 58	082 31
♋	2	089 07	088 41	088 14	087 47	087 20	086 33
	6	093 29	093 03	092 36	092 10	091 43	091 16
	10	097 53	097 27	097 00	096 34	096 07	095 41
	14	102 16	101 50	101 24	100 57	100 31	100 06
	18	106 38	106 13	105 48	105 22	104 57	104 31
	22	110 58	110 35	110 10	109 46	109 21	108 55
	26	115 18	114 55	114 32	114 08	113 44	113 19
♌	0	119 36	119 19	118 52	118 29	118 06	117 43

S.	D.	7	8	9	10	11	12
♌	0	119 36	119 14	118 52	118 29	118 06	117 43
	4	123 52	123 31	123 10	122 48	122 26	122 04
	8	128 06	127 46	127 25	127 04	126 45	126 23
	12	132 18	131 58	131 39	131 20	131 01	130 41
	16	136 27	136 09	135 52	135 34	135 16	134 58
	20	140 33	140 17	140 01	139 45	139 28	139 11
	24	144 38	144 23	144 09	143 54	143 39	143 23
	28	148 40	148 27	148 13	148 01	147 47	147 33
♍	2	152 40	152 28	152 17	152 05	151 53	151 41
	6	156 39	156 28	156 18	156 08	155 58	155 48
	10	160 35	160 26	160 18	160 09	160 01	159 52
	14	164 30	164 23	164 16	164 09	164 03	163 56
	18	168 24	168 18	168 13	168 08	168 03	167 58
	22	172 16	172 13	172 09	172 06	172 03	171 59
	26	176 08	176 07	176 05	176 04	176 02	176 00
♎	0	180 00	180 00	180 00	180 00	180 00	180 00
	4	183 52	183 53	183 55	183 56	183 58	184 00
	8	187 44	187 47	187 51	187 44	187 57	188 01
	12	191 36	191 42	191 47	191 52	191 57	192 02
	16	195 30	195 37	195 44	195 51	195 57	196 04
	20	199 25	199 34	199 43	199 51	199 59	200 08
	24	203 21	203 32	203 42	203 52	204 02	204 12
	28	207 20	207 32	207 42	207 55	208 07	208 19
♏	2	211 20	211 33	211 46	211 59	212 13	212 27
	6	215 22	215 37	215 51	216 06	216 21	216 37
	10	219 27	219 43	219 59	220 15	220 32	220 49
	14	223 33	223 51	224 08	224 26	224 44	225 02
	18	227 42	228 02	228 21	228 40	228 59	229 19
	22	231 54	232 14	232 35	232 56	233 15	233 37
	26	236 08	236 29	236 50	237 12	237 34	237 56
♐	0	240 24	240 46	241 08	241 31	241 54	242 17

S.	D.	7	8	9	10	11	12
♑	0	240 24	240 46	241 08	241 31	241 54	242 17
	4	244 42	245 05	245 25	245 52	246 16	246 41
	8	249 02	249 25	249 50	250 14	250 39	251 05
	12	253 22	253 47	254 12	254 38	255 03	255 29
	16	257 44	258 10	258 36	259 02	259 29	259 54
	20	262 07	262 33	263 00	263 26	263 53	264 19
	24	266 31	266 57	267 24	267 50	268 17	268 44
	28	270 53	271 19	271 46	272 13	272 40	273 07
♒	2	275 15	275 41	276 08	276 35	277 02	277 29
	6	279 35	280 02	280 28	280 55	281 22	281 49
	10	283 53	284 19	284 47	285 12	285 39	286 05
	14	288 09	288 35	289 01	289 28	289 53	290 19
	18	292 24	292 48	293 13	293 39	294 04	294 30
	22	296 35	296 58	297 23	297 48	298 12	298 38
	26	300 43	301 06	301 29	301 53	302 17	302 41
♓	0	304 48	305 10	305 32	305 55	306 18	306 41
	4	308 48	309 10	309 31	309 53	310 14	313 37
	8	312 45	313 05	313 26	313 46	314 06	314 28
	12	316 39	316 58	317 17	317 36	317 55	318 15
	16	320 30	320 48	321 05	321 23	321 41	321 59
	20	324 17	324 33	324 49	325 06	325 22	325 39
	24	328 02	328 17	328 31	328 46	329 01	329 16
	28	331 42	331 56	332 09	332 22	332 36	332 49
♈	2	335 21	335 32	335 44	335 56	336 08	336 20
	6	338 57	339 08	339 17	339 28	339 37	339 48
	10	342 31	342 40	342 48	342 57	343 05	343 14
	14	346 03	346 10	346 17	346 24	346 30	346 38
	18	349 34	349 39	349 44	349 49	349 54	350 00
	22	353 03	353 07	353 10	353 13	353 17	353 20
	26	356 32	356 34	356 36	356 37	356 39	356 40
	30	360 00	360 00	360 00	360 00	360 00	360 00

S.	D.	13		14		15		16		17		18	
♈	0	000	00	000	00	000	00	000	00	000	00	000	00
	4	003	17	003	16	003	14	003	12	003	10	003	08
	8	006	36	006	33	006	29	006	26	006	22	006	18
	12	009	56	009	50	009	45	009	40	009	34	009	28
	16	013	16	013	09	013	02	012	55	012	47	012	40
	20	016	38	016	29	016	20	016	11	016	02	015	53
	24	020	02	019	51	019	40	019	30	019	19	019	09
	28	023	28	023	16	023	04	022	51	022	39	022	27
♉	2	026	57	026	43	026	29	026	15	026	02	025	47
	6	030	28	030	13	029	58	029	42	029	27	029	10
	10	034	04	033	48	033	31	033	13	032	56	032	38
	14	037	43	037	24	037	06	036	47	036	28	036	09
	18	041	26	041	06	040	46	040	26	040	05	039	44
	22	045	12	044	50	044	29	044	08	043	46	043	24
	26	049	01	048	39	048	17	047	54	047	31	047	07
♊	0	052	55	052	32	052	09	051	45	051	20	050	56
	4	056	55	056	30	056	05	055	41	055	15	054	50
	8	060	58	060	32	060	06	059	40	059	13	058	48
	12	065	04	064	38	064	12	063	45	063	17	062	50
	16	069	14	068	48	068	21	067	53	067	55	066	57
	20	073	28	073	00	072	33	072	05	071	37	071	09
	24	077	44	077	16	076	49	076	21	075	53	075	24
	28	082	04	081	36	081	08	080	40	080	12	079	43
♋	2	086	25	085	57	085	30	085	01	084	33	084	04
	6	090	49	090	21	089	54	089	25	088	57	088	28
	10	095	14	094	46	094	19	093	51	093	23	092	55
	14	099	39	099	12	098	46	098	18	097	50	097	22
	18	104	05	103	39	103	13	102	46	102	18	101	52
	22	108	31	108	05	107	40	107	14	106	48	106	21
	26	112	55	112	31	112	06	111	41	111	16	110	51
♌	0	117	19	116	56	116	33	116	09	115	44	115	20

S.	D.	13		14		15		16		17		18	
♌	0	117	19	116	56	116	33	116	09	115	44	115	20
	4	121	42	121	20	120	57	120	35	120	12	119	48
	8	126	02	125	42	125	20	124	59	124	37	124	15
	12	130	22	130	02	129	42	129	22	129	02	128	41
	16	134	40	134	22	134	03	133	44	133	26	133	06
	20	138	54	138	38	138	21	138	03	137	46	137	28
	24	143	08	142	53	142	37	142	22	142	06	141	50
	28	147	19	147	05	146	52	146	38	146	24	146	10
♍	2	151	29	151	17	151	04	150	52	150	40	150	28
	6	155	27	155	27	155	16	155	06	154	55	154	44
	10	159	44	159	35	159	26	159	17	159	08	158	59
	14	163	49	163	42	163	34	163	28	163	20	163	13
	18	167	53	167	48	167	42	167	37	167	31	167	25
	22	171	56	171	52	171	49	171	45	171	41	171	37
	26	175	58	175	56	175	55	175	53	175	51	175	49
♎	0	180	00	180	00	180	00	180	00	180	00	180	00
	4	184	02	184	04	184	05	184	07	184	09	184	11
	8	188	04	188	08	188	11	188	15	188	19	188	23
	12	192	07	192	12	192	18	192	23	192	29	192	35
	16	196	11	196	18	196	26	196	32	196	40	196	47
	20	200	16	200	25	200	34	200	43	200	52	201	01
	24	204	23	204	33	204	44	204	55	205	05	205	16
	28	208	31	208	43	208	56	209	08	209	20	209	32
♏	2	212	41	212	55	213	08	213	22	213	36	213	50
	6	216	52	217	07	217	23	217	38	217	54	218	10
	10	221	06	221	22	221	39	221	57	222	14	222	32
	14	225	20	225	38	225	57	226	16	226	34	226	54
	18	229	38	229	58	230	18	230	38	230	58	231	19
	22	233	58	234	18	234	40	235	01	235	23	235	45
	26	238	18	238	40	239	03	239	26	239	48	240	12
♐	0	242	41	243	04	243	27	243	51	244	16	244	40

S.	D.	13	14	15	16	17	18
♐	0	242 41	243 04	243 27	243 51	244 16	244 40
	4	247 05	247 29	247 54	248 19	248 44	249 09
	8	251 29	251 55	252 20	252 46	253 12	253 39
	12	255 55	256 21	256 47	257 14	257 42	258 08
	16	260 21	260 48	261 14	261 42	262 10	262 38
	20	264 46	265 14	265 41	266 09	266 37	267 05
	24	269 11	269 39	270 06	270 35	271 03	271 32
	28	273 35	274 03	274 30	274 59	275 27	275 56
♑	2	277 56	278 24	278 52	279 20	279 48	280 17
	6	282 16	282 44	283 11	283 39	284 07	284 36
	10	286 32	287 00	287 27	287 55	288 23	288 51
	14	290 46	291 12	291 39	292 07	292 35	293 03
	18	294 56	295 22	295 48	296 15	296 43	297 10
	22	299 02	299 28	299 54	300 20	300 45	301 12
	26	303 05	303 30	303 55	304 19	304 55	305 10
♒	0	307 05	307 28	307 51	308 15	308 40	309 04
	4	310 59	311 21	311 43	312 06	312 29	312 53
	8	314 48	315 10	315 31	315 55	316 14	316 36
	12	318 37	318 54	319 14	319 34	319 55	320 16
	16	322 17	322 36	322 54	323 13	323 32	323 51
	20	325 56	326 12	326 29	326 47	327 04	327 22
	24	329 32	329 47	330 02	330 18	330 33	330 50
	28	333 03	333 17	333 31	333 45	333 58	334 13
♓	2	336 32	336 44	336 56	337 09	337 21	337 33
	6	339 58	340 09	340 20	340 30	340 41	340 51
	10	343 22	343 31	343 40	343 49	343 58	344 07
	14	346 44	346 51	346 59	347 05	347 13	347 20
	18	350 04	350 10	350 15	350 20	350 26	350 32
	22	353 24	353 27	353 31	353 34	353 38	353 42
	26	356 43	356 44	356 46	356 48	356 50	356 52
	30	360 00	360 00	360 00	360 00	360 00	360 00

S.	D.	19	20	21	22	23	24
♈	0	000 00	000 00	000 00	000 00	000 00	000 00
	4	003 07	003 05	003 03	003 01	002 59	002 57
	8	006 15	006 11	006 07	006 03	005 59	005 55
	12	009 23	009 17	009 11	009 06	009 00	008 54
	16	012 32	012 25	012 17	012 10	012 02	011 54
	20	015 44	015 35	015 25	015 16	015 06	014 56
	24	018 58	018 47	018 35	018 24	018 12	018 00
	28	022 14	022 01	021 48	021 35	021 21	021 08
♉	2	025 23	025 18	025 03	024 48	024 33	024 18
	6	028 55	028 39	028 21	028 05	027 48	027 31
	10	032 21	032 03	031 44	031 26	031 07	030 48
	14	035 50	035 31	035 10	034 50	034 30	034 09
	18	039 24	039 03	038 41	038 20	037 57	037 36
	22	043 02	042 40	042 17	041 54	041 30	041 06
	26	046 44	046 20	045 56	045 32	045 07	044 41
♊	0	050 31	050 06	049 41	049 15	048 49	048 22
	4	054 24	053 58	053 32	053 04	052 38	052 09
	8	058 21	057 54	057 27	056 58	056 30	056 01
	12	062 23	061 55	061 27	060 58	060 28	059 59
	16	066 29	066 01	065 32	065 03	064 3	064 02
	20	070 40	070 11	069 41	069 11	068 40	068 09
	24	074 55	074 25	073 55	073 25	072 54	072 22
	28	079 13	078 44	078 13	077 42	077 12	076 40
♋	2	083 35	083 05	082 35	082 04	081 34	081 02
	6	087 59	087 29	086 59	086 29	085 58	085 27
	10	092 26	091 57	091 27	090 57	090 26	089 55
	14	096 54	096 [illegible]	095 56	095 29	094 57	094 26
	18	101 2	100 55	100 28	099 59	099 [illegible]	098 59
	22	105 55	105 26	105 00	104 31	104 0	103 34
	26	110 25	109 58	109 32	109 05	108 38	108 10
♌	0	114 55	114 30	114 05	113 39	113 [illegible]	112 46

S.	D.	19		20		21		22		23		24	
♌	0	114	55	114	30	114	05	113	39	113	30	112	46
	4	119	25	119	01	118	37	118	12	117	48	117	22
	8	123	53	123	31	123	08	122	44	122	21	121	57
	12	128	20	128	00	127	38	127	16	126	54	126	32
	16	132	47	132	28	132	07	131	48	131	27	131	06
	20	137	11	136	53	136	34	136	16	135	57	135	38
	24	141	35	141	18	141	01	140	44	140	28	140	10
	28	145	55	145	51	145	25	145	11	144	56	144	46
♍	2	150	15	150	02	149	49	149	35	149	22	149	08
	6	154	34	154	22	154	11	153	59	153	48	153	36
	10	158	50	158	41	158	31	158	32	158	12	158	02
	14	163	06	162	58	162	51	162	43	162	36	162	27
	18	167	20	167	14	167	09	167	03	166	58	166	51
	22	171	34	171	30	171	26	171	23	171	19	171	15
	26	175	48	175	46	175	44	175	42	175	40	175	38
♎	0	180	00	180	00	180	00	180	00	180	00	180	00
	4	184	12	184	14	184	16	184	18	184	20	184	21
	8	188	26	188	30	188	34	188	37	188	41	188	45
	12	192	40	192	46	192	51	192	57	193	02	193	09
	16	196	54	197	02	197	09	197	17	197	24	197	33
	20	201	10	201	19	201	29	201	38	201	48	201	58
	24	205	26	205	38	205	49	206	01	206	12	206	24
	28	209	45	209	58	210	11	210	25	210	38	210	52
♏	2	214	05	214	19	214	35	214	49	215	04	215	20
	6	218	25	218	42	218	59	219	16	219	32	219	50
	10	222	49	223	07	223	26	223	44	224	03	224	22
	14	227	13	227	32	227	53	228	12	228	33	228	54
	18	231	40	232	00	232	22	232	44	233	06	233	08
	22	236	07	236	29	236	52	237	16	237	39	238	03
	26	240	35	240	59	241	23	241	48	242	12	242	38
♐	0	245	05	245	30	245	55	246	21	246	47	247	14

S.	*D.*	19	20	21	22	23	24
♌	0	245 05	245 30	245 55	246 21	246 47	247 14
	4	249 35	250 02	250 28	250 55	251 22	251 50
	8	254 05	254 34	255 00	255 29	255 57	256 26
	12	258 36	259 05	259 32	260 01	260 31	261 01
	16	263 06	263 35	264 04	264 33	265 03	265 34
	20	267 34	268 03	268 33	269 03	269 34	270 05
	24	272 01	272 31	273 01	273 31	274 02	274 33
	28	276 25	276 55	277 25	277 50	278 26	278 58
♍	2	280 47	281 16	281 47	282 18	282 48	283 20
	6	285 05	285 35	286 05	286 35	287 06	287 38
	10	289 20	289 49	290 19	290 49	291 20	291 51
	14	293 31	293 59	294 28	294 57	295 28	295 59
	18	297 57	298 05	298 33	299 02	299 32	300 01
	22	301 39	302 06	302 33	303 02	303 30	303 59
	26	305 36	306 02	306 28	306 56	307 22	307 51
♎	0	309 29	309 54	310 19	310 45	311 11	311 38
	4	313 16	313 40	314 04	314 28	314 53	315 19
	8	316 58	317 20	317 43	318 06	318 30	318 54
	12	320 36	320 57	321 19	321 40	322 03	322 24
	16	324 10	324 29	324 50	325 10	325 30	325 51
	20	327 39	327 57	328 16	328 34	328 53	329 12
	24	331 05	331 21	331 39	331 55	332 12	332 29
	28	334 27	334 42	334 57	335 12	335 29	335 42
♐	2	337 46	337 59	338 12	338 25	338 39	338 52
	6	341 02	341 13	341 25	341 36	341 48	342 00
	10	344 16	344 25	344 35	344 44	344 54	345 04
	14	347 28	347 35	347 43	347 50	347 58	348 06
	18	350 37	350 43	350 49	350 54	351 00	351 06
	22	353 45	353 49	353 53	353 57	354 01	354 05
	26	356 53	356 55	356 57	356 56	357 01	357 03
	30	360 00	360 00	360 00	360 00	360 00	360 00

S.	D.	25	26	27	28	29	30.
♈	0	000 00	000 00	000 00	000 00	000 00	000 00
	4	002 53	002 57	002 51	002 48	002 47	002 44
	8	005 51	005 47	005 43	005 38	005 35	005 30
	12	008 48	008 42	008 35	008 29	008 23	008 16
	16	011 46	011 38	011 30	011 21	011 12	011 04
	20	014 46	014 36	014 26	014 15	014 04	013 54
	24	017 49	017 36	017 24	017 11	016 59	016 46
	28	020 54	020 40	020 25	020 11	019 55	019 41
♉	2	024 01	023 46	023 29	023 13	022 55	022 39
	6	027 13	026 55	026 37	026 18	026 00	025 40
	10	030 29	030 09	029 49	029 29	029 08	028 47
	14	033 49	033 27	033 04	032 43	032 19	031 57
	18	037 13	036 50	036 26	036 02	035 37	035 13
	22	040 42	040 17	039 53	039 27	039 00	038 34
	26	044 15	043 50	043 22	042 56	042 28	042 00
♊	0	047 54	047 28	047 00	046 31	046 02	045 32
	4	051 41	051 12	050 43	050 13	049 43	049 12
	8	055 32	055 02	054 32	054 00	053 29	052 57
	12	059 29	058 58	058 26	057 54	057 21	056 49
	16	063 31	062 59	062 27	061 55	061 20	060 47
	20	067 38	067 06	066 33	066 00	065 26	064 51
	24	071 50	071 18	070 45	070 11	069 37	069 02
	28	076 08	075 35	075 02	074 28	073 53	073 18
♋	2	080 30	079 57	079 24	078 50	078 15	077 40
	6	084 55	084 23	083 50	083 16	082 41	082 06
	10	089 24	088 52	088 19	087 46	087 12	086 37
	14	093 56	093 24	092 51	092 19	091 45	091 11
	18	098 29	097 59	097 27	096 55	096 21	095 49
	22	103 05	102 35	102 05	101 33	101 02	100 29
	26	107 41	107 12	106 44	106 13	105 43	105 12
♌	0	112 18	111 52	111 24	110 55	110 26	109 56

S.	D.	25	26	27	28	29	30
♌	0	112 18	111 52	111 24	110 55	110 26	109 56
	4	116 56	116 31	116 04	115 37	115 09	114 40
	8	121 33	121 09	120 43	120 18	119 51	119 24
	12	126 10	125 47	125 23	124 59	124 34	124 09
	16	130 46	130 24	130 02	129 48	129 17	128 54
	20	135 19	134 59	134 39	134 19	133 58	133 37
	24	139 52	139 45	139 17	138 58	138 39	138 20
	28	144 24	144 08	143 52	143 39	143 18	143 02
♍	2	148 55	148 40	148 26	148 11	147 57	147 41
	6	153 24	153 12	153 00	152 47	152 34	152 21
	10	157 52	157 42	157 32	157 21	157 10	157 02
	14	162 20	162 11	162 03	161 54	161 46	161 37
	18	166 46	166 39	166 33	166 26	166 20	166 13
	22	171 11	171 07	170 02	170 58	170 54	170 49
	26	175 36	175 34	175 32	175 29	175 18	175 25
♎	0	180 00	180 00	180 00	180 00	180 00	180 00
	4	184 24	184 26	184 28	184 31	184 32	184 35
	8	188 49	188 53	188 58	189 02	189 06	189 11
	12	193 14	193 21	193 27	193 34	193 40	193 47
	16	197 40	197 49	197 57	198 06	198 14	198 23
	20	202 08	202 18	202 28	202 38	202 50	202 59
	24	206 36	206 48	207 00	207 13	207 26	207 39
	28	211 05	211 20	211 34	211 49	212 03	212 19
♏	2	215 36	215 52	216 08	216 25	216 42	216 59
	6	220 08	220 25	220 43	221 02	221 21	221 40
	10	224 41	224 02	225 21	225 41	226 02	226 23
	14	229 14	229 36	229 58	230 20	230 43	231 06
	18	233 50	234 13	234 37	235 01	235 26	235 51
	22	238 27	238 51	239 17	239 42	240 09	240 36
	26	243 04	243 29	243 56	244 23	244 51	245 20
	30	247 42	248 08	248 36	249 05	249 34	250 04

S.	D.	25	26	27	28	29	30
♌	0	247 42	248 08	248 36	249 05	249 34	250 04
	4	252 19	252 48	253 16	253 47	254 17	254 48
	8	256 55	257 15	257 55	258 27	258 58	259 31
	12	261 31	262 01	262 33	263 05	263 38	264 11
	16	266 04	266 36	267 09	267 41	268 15	268 49
	20	270 36	271 08	271 41	272 14	272 48	273 23
	24	274 05	275 37	276 40	276 44	277 19	277 54
	28	279 30	280 03	280 36	281 10	281 45	282 20
♍	2	283 52	284 25	284 58	285 32	286 07	286 42
	6	288 10	288 42	289 15	289 49	290 23	290 58
	10	292 22	292 54	293 27	294 00	294 34	295 09
	14	296 29	297 01	297 33	298 05	298 40	299 13
	18	300 31	301 02	301 34	302 06	302 39	303 11
	22	304 28	304 59	305 28	306 00	306 31	307 03
	26	308 19	308 48	309 17	309 47	310 17	310 48
♎	0	312 06	312 32	313 00	313 29	313 29	313 58
	4	314 28	315 45	316 10	316 38	317 04	317 32
	8	319 19	319 48	320 03	320 37	321 00	321 26
	12	320 47	323 10	323 34	323 58	324 23	324 47
	16	326 11	326 33	326 56	327 16	327 41	328 03
	20	329 31	329 51	330 11	330 31	330 52	331 13
	24	332 47	333 05	333 23	333 42	334 00	334 20
	28	335 59	336 14	336 31	336 47	337 05	337 21
♐	2	339 06	339 20	339 35	339 49	340 05	340 19
	6	342 11	342 24	342 36	342 49	343 01	343 14
	10	345 14	345 24	345 34	345 45	345 56	346 06
	14	348 14	348 22	348 30	348 39	348 48	348 56
	18	351 12	351 18	351 25	351 31	351 37	351 44
	22	354 09	354 13	354 17	354 22	354 25	354 30
	26	357 05	357 07	357 09	357 12	357 13	357 16
	30	360 00	360 00	360 00	360 00	360 00	360 00

S.	D.	31	32	32.11	33	34	35
♈	0	000 00	000 00	000 00	000 00	000 00	000 00
	4	002 42	002 40	002 39	002 37	002 35	002 32
	8	005 26	005 21	005 20	005 16	005 11	005 06
	12	008 10	008 03	008 02	007 56	007 48	007 41
	16	010 55	010 47	010 44	010 36	010 27	010 17
	20	013 42	013 31	013 28	013 19	013 07	012 55
	24	016 32	016 19	016 15	016 04	015 51	015 35
	28	019 25	019 10	019 05	018 52	018 37	018 19
♉	2	022 21	022 04	021 59	021 44	021 26	021 07
	6	025 20	025 01	024 56	024 40	024 19	023 57
	10	028 25	028 03	027 56	027 40	027 17	026 53
	14	031 33	031 09	031 03	030 44	030 19	029 53
	18	034 47	034 21	034 15	033 54	033 27	032 59
	22	038 06	037 39	037 32	037 10	036 41	036 10
	26	041 31	041 02	040 55	040 31	040 00	039 52
♊	0	045 02	044 31	044 24	043 59	043 26	042 52
	4	048 40	048 07	047 59	047 33	047 00	046 24
	8	052 24	051 50	051 42	051 15	050 40	050 03
	12	056 14	055 38	055 31	055 03	054 26	053 49
	16	060 12	059 36	059 27	058 59	058 21	057 42
	20	064 15	063 39	063 31	063 01	062 23	061 43
	24	068 25	067 48	067 31	067 10	066 31	065 51
	28	072 41	072 04	071 56	071 26	070 47	070 05
♋	2	077 02	076 25	076 18	075 48	075 09	074 28
	6	081 29	080 53	080 45	080 15	079 36	078 56
	10	086 01	085 25	085 17	084 47	084 09	083 29
	14	090 37	090 01	089 53	089 23	088 46	088 07
	18	095 16	094 40	094 33	094 04	093 28	092 50
	22	099 57	099 23	099 16	098 48	098 13	097 36
	26	104 40	104 07	104 01	103 34	103 00	102 24
♌	0	109 26	108 55	108 48	108 23	108 50	107 16

S.	D.	31	32	32,11	33	34	35
♑	0	109 26	108 55	108 48	108 23	107 50	107 16
	4	114 11	113 42	113 35	113 41	112 40	112 08
	8	118 57	118 29	118 24	118 01	117 31	117 02
	12	123 43	123 17	123 13	122 51	122 23	121 55
	16	128 31	128 06	128 01	127 42	127 16	126 51
	20	133 15	132 53	132 49	132 30	132 07	131 43
	24	138 00	137 41	137 36	137 19	136 59	136 37
	28	142 44	142 26	142 21	142 07	141 49	141 29
♒	2	147 26	147 10	147 07	146 54	146 38	146 21
	6	152 08	151 54	151 50	151 40	151 26	151 11
	10	156 48	156 37	156 34	156 25	156 13	156 01
	14	161 28	161 19	161 16	161 09	161 00	160 50
	18	166 07	166 00	165 58	165 53	165 46	165 38
	22	170 48	170 40	170 39	170 36	170 31	170 26
	26	175 23	175 20	175 19	175 18	175 16	175 13
♓	0	180 00	180 00	180 00	180 00	180 60	180 00
	4	184 37	184 40	184 41	184 42	184 44	184 47
	8	189 15	189 20	189 21	199 24	189 29	189 34
	12	193 53	194 00	194 02	194 07	194 14	194 22
	16	198 32	198 41	198 44	198 51	199 00	199 10
	20	203 12	203 23	203 26	203 35	203 47	203 59
	24	207 52	208 06	208 09	208 20	208 34	208 49
	28	212 34	212 50	212 53	213 06	213 22	213 39
♈	2	217 16	217 34	217 39	217 53	218 11	218 31
	6	222 00	222 19	222 24	222 41	223 01	223 23
	10	226 45	227 07	227 10	227 30	227 53	228 17
	14	231 29	231 54	231 59	232 18	232 44	233 09
	18	236 17	236 43	236 47	237 09	237 37	238 05
	22	241 03	241 31	241 36	241 59	242 29	242 59
	26	245 49	246 18	246 25	246 49	247 20	247 52
	30	250 34	251 05	251 12	251 37	252 10	252 44

S.	D.	31	32	32.11	33	34	35
♑	0	250 34	251 05	251 12	251 37	252 10	252 44
	4	255 20	255 53	255 59	256 26	257 00	257 36
	8	160 03	260 37	260 44	261 12	261 47	262 24
	12	264 44	265 20	265 27	265 55	266 32	267 10
	16	269 23	269 59	270 07	270 37	271 14	271 53
	20	273 59	274 35	274 43	275 13	275 51	276 31
	24	278 31	279 07	279 15	279 45	280 24	281 04
	28	282 58	283 35	283 42	284 12	284 51	285 32
♒	2	287 19	287 56	288 04	288 34	289 13	289 55
	6	291 35	292 12	292 19	292 15	293 29	294 09
	10	295 45	296 21	296 29	296 59	297 37	298 17
	14	299 48	300 24	300 33	301 04	301 39	302 18
	18	303 46	304 22	304 29	304 57	305 34	306 11
	22	307 36	308 10	308 18	308 45	309 20	309 57
	26	311 20	311 53	312 01	312 27	313 00	313 36
♓	0	314 58	315 29	315 36	316 01	316 34	317 08
	4	318 29	318 58	319 05	319 29	320 00	320 32
	8	321 54	322 21	322 28	322 50	323 19	323 50
	12	325 13	325 39	325 45	326 06	326 33	327 01
	16	328 28	328 51	328 57	329 16	329 41	330 07
	20	331 35	331 57	332 03	332 20	332 43	333 07
	24	334 40	334 59	335 04	335 20	335 41	336 03
	28	337 39	337 56	338 01	338 16	338 34	338 53
♈	2	340 35	340 50	340 55	341 08	341 23	341 41
	6	343 28	343 41	343 44	343 56	344 09	344 25
	10	346 18	346 29	346 32	346 41	346 53	347 05
	14	349 05	349 14	349 16	349 24	349 33	349 43
	18	351 50	351 57	351 59	352 04	352 12	352 19
	22	354 24	354 39	354 40	354 44	354 49	354 54
	26	357 18	357 20	357 21	357 23	357 25	357 28
	30	360 00	360 00	360 00	360 00	360 00	360 00

S.	D.	36	37	38	39	40	41
	0	000 00	000 00	000 00	000 00	000 00	000 00
	4	002 30	002 28	002 25	002 22	002 20	002 16
	8	005 02	004 56	004 51	004 46	004 40	004 34
	12	007 34	007 26	007 18	007 10	007 01	006 53
	16	010 07	009 57	009 46	009 35	009 24	009 13
	20	012 43	012 30	012 17	012 03	011 48	011 35
	24	015 21	015 06	014 49	014 34	014 16	013 59
	28	018 02	017 45	017 25	017 07	016 48	016 28
♈	2	020 46	020 27	020 05	019 44	019 22	018 59
	6	023 35	023 12	022 49	022 25	022 00	021 34
	10	026 29	026 03	025 38	025 11	024 44	024 15
	14	029 26	028 58	028 31	028 02	027 32	027 01
	18	032 30	032 00	031 30	030 58	030 26	029 53
	22	035 40	035 08	034 35	034 02	033 27	032 52
	26	038 56	038 21	037 46	037 11	036 34	035 56
♉	0	042 18	041 42	041 06	040 28	039 49	039 09
	4	045 48	045 11	044 32	043 54	043 12	042 30
	8	049 25	048 47	048 06	047 26	046 43	046 00
	12	053 09	052 30	051 49	051 06	050 23	049 38
	16	057 03	056 22	055 39	054 56	054 11	053 25
	20	061 03	060 21	059 38	058 53	058 07	057 20
	24	065 10	064 28	063 44	062 59	062 12	061 24
	28	069 24	068 42	067 58	067 13	066 26	065 38
♊	2	073 47	073 04	072 20	071 35	070 47	069 59
	6	078 15	077 33	076 49	076 04	075 17	074 29
	10	082 49	082 07	081 24	080 39	079 53	079 06
	14	087 28	086 46	086 04	085 21	084 35	083 49
	18	092 11	091 31	090 50	090 08	089 29	088 39
	22	096 58	096 19	095 40	094 59	094 17	093 33
	26	101 49	101 11	100 33	099 54	099 13	098 31
♋	0	106 42	106 06	105 30	104 52	104 13	103 33

S.	D.	36		37		38		39		40		42	
♑	0	106	42	106	06	105	30	104	52	104	13	103	33
	4	111	36	111	02	110	27	109	52	109	15	108	37
	8	116	30	115	59	115	26	114	53	114	18	113	42
	12	121	26	120	57	120	27	119	55	119	22	118	49
	16	126	23	125	56	125	28	124	59	124	28	123	57
	20	131	19	130	53	130	28	130	01	129	34	129	05
	24	136	15	135	52	135	28	135	05	134	40	134	14
	28	141	09	140	49	140	28	140	07	139	44	139	22
♒	2	146	03	145	45	145	27	145	08	144	48	144	29
	6	150	57	150	41	150	25	150	09	149	52	149	35
	10	155	49	155	36	155	23	155	09	154	54	154	41
	14	160	41	160	30	160	10	160	09	159	57	159	46
	18	165	31	165	23	165	15	165	07	164	59	164	50
	22	170	21	170	16	170	10	170	05	170	00	169	53
	26	175	11	175	08	175	06	175	03	175	00	174	57
♓	0	180	00	180	00	180	00	180	00	180	00	180	00
	4	184	49	184	52	184	54	184	57	185	00	185	03
	8	189	39	189	44	189	50	189	55	190	00	190	07
	12	194	29	194	37	194	45	194	53	195	01	195	10
	16	199	19	199	30	199	41	199	51	200	03	200	14
	20	204	11	204	24	204	37	204	51	205	05	205	19
	24	209	03	209	19	209	35	209	51	210	08	210	25
	28	213	57	214	15	214	33	214	52	215	12	215	31
♈	2	218	51	219	11	219	32	219	53	220	19	220	38
	6	223	45	224	08	224	32	224	55	225	23	225	46
	10	228	41	229	07	229	32	229	59	230	26	230	55
	14	233	37	234	04	234	32	235	01	235	32	236	03
	18	238	34	239	03	239	33	240	05	240	38	241	11
	22	243	30	244	01	244	34	245	07	245	42	246	18
	26	248	24	248	58	249	33	250	08	250	45	251	23
	30	253	18	253	54	254	30	255	08	255	47	256	27

☉	D.	36		37		38		39		40		41	
♐	0	253	18	253	54	254	30	255	08	255	47	256	27
	4	258	11	258	49	259	26	260	06	260	47	261	29
	8	263	02	263	41	264	20	265	01	265	43	266	27
	12	267	49	268	29	269	10	269	52	270	36	271	21
	16	272	32	273	14	273	56	274	39	275	25	276	11
	20	277	11	277	53	278	36	279	21	280	07	280	54
	24	281	45	282	27	283	11	283	56	284	43	285	31
	28	286	13	286	56	287	40	288	55	289	13	290	01
♑	2	290	36	291	18	291	02	292	47	293	34	294	22
	6	294	50	295	32	296	16	297	01	297	48	298	36
	10	298	57	299	39	300	22	301	07	301	53	302	40
	14	302	57	303	38	304	21	305	04	305	49	306	35
	18	306	51	307	30	308	11	308	54	309	37	310	22
	22	310	35	311	13	311	54	312	34	313	17	314	00
	26	314	12	314	49	315	28	316	06	316	48	317	30
♒	0	317	42	318	18	318	54	319	32	320	11	320	51
	4	321	04	321	39	322	13	322	49	323	27	324	04
	8	324	20	324	52	325	25	325	58	326	33	327	08
	12	327	30	328	00	328	30	329	02	329	34	330	07
	16	330	34	331	02	331	29	331	58	332	28	332	59
	20	333	31	333	57	334	22	334	49	335	16	335	45
	24	336	25	336	48	337	11	337	35	338	00	338	26
	28	339	14	339	33	339	55	340	16	340	38	341	01
♓	2	341	58	342	15	342	35	342	53	343	12	343	32
	6	344	39	344	54	345	11	345	26	345	44	346	01
	10	347	17	347	30	347	43	347	57	348	12	348	25
	14	349	53	350	03	350	14	350	25	350	36	350	47
	18	352	26	352	34	352	42	352	50	352	59	353	07
	22	354	58	355	04	355	09	355	14	355	20	355	26
	26	357	30	357	32	357	35	357	38	357	40	357	44
	30	360	00	360	00	360	00	360	00	360	00	360	00

S.	D.	42		43		44		45		46		47	
♈	0	000	00	000	00	000	00	000	00	000	00	000	00
	4	002	13	002	11	002	08	002	04	002	00	001	55
	8	004	28	004	22	004	16	004	09	004	02	003	55
	12	006	44	006	34	006	25	006	15	006	05	005	55
	16	009	00	008	48	008	36	008	23	008	09	007	55
	20	011	20	011	04	010	49	010	32	010	15	009	58
	24	013	42	013	24	013	05	012	44	012	24	012	03
	28	016	07	015	46	015	24	015	01	014	37	014	12
♉	2	018	36	018	12	017	46	017	20	016	53	016	25
	6	021	08	020	41	020	12	019	43	019	13	018	41
	10	023	46	023	16	022	45	022	12	021	39	021	04
	14	026	29	025	56	025	22	024	47	024	10	023	31
	18	029	18	028	44	028	06	027	28	026	47	026	05
	22	032	15	031	37	030	57	030	15	029	33	028	48
	26	035	16	034	35	033	53	033	10	032	23	031	46
♊	0	038	27	037	44	036	59	036	13	035	24	034	34
	4	041	46	041	02	040	14	039	25	038	34	037	41
	8	045	13	044	27	043	38	042	47	041	52	040	58
	12	048	51	048	02	047	11	046	18	045	24	044	25
	16	052	36	051	46	050	53	049	59	049	03	048	03
	20	056	30	055	39	054	46	053	50	052	53	051	52
	24	060	34	059	43	058	48	057	52	056	53	055	52
	28	064	42	063	55	063	01	062	04	061	04	060	03
♋	2	069	02	068	17	067	21	066	26	065	27	064	25
	6	073	39	072	47	071	53	070	56	069	58	068	57
	10	078	16	077	25	076	32	075	36	074	39	073	38
	14	083	01	082	11	081	18	080	24	079	28	078	28
	18	087	52	087	04	086	12	085	20	084	25	083	26
	22	092	47	092	01	091	11	090	20	089	27	088	31
	26	097	47	097	02	096	15	095	26	094	35	093	42
	30	102	51	102	08	101	23	100	37	099	48	098	58

S.	D.	42		43		44		45		46		47	
♑	0	102	51	102	08	101	23	100	37	099	48	098	58
	4	107	57	107	16	106	34	105	50	105	04	104	17
	8	113	05	112	27	111	47	111	06	110	23	109	38
	12	118	15	117	39	117	02	116	23	115	44	115	02
	16	123	25	122	53	122	19	121	42	121	16	120	28
	20	128	36	128	06	127	35	127	02	126	29	125	54
	24	133	48	133	21	132	52	132	25	131	52	131	20
	28	138	58	138	34	138	08	137	43	137	15	136	47
♒	2	144	08	143	47	143	24	143	02	142	38	142	30
	6	149	18	148	59	148	40	148	20	148	00	147	39
	10	154	26	154	10	153	55	153	38	153	21	153	04
	14	159	34	159	22	159	09	158	56	158	42	158	28
	18	164	41	164	31	164	22	164	12	164	02	163	52
	22	169	48	169	41	169	35	169	28	169	22	169	15
	26	174	54	174	51	174	48	174	44	174	41	174	38
♓	0	180	00	180	00	180	00	180	00	180	00	180	00
	4	185	06	185	09	185	12	185	16	185	19	185	22
	8	190	12	190	19	190	25	190	32	190	38	190	45
	12	195	19	195	29	195	38	195	48	195	58	196	08
	16	200	26	200	38	200	51	201	04	201	18	201	32
	20	205	34	205	50	206	05	206	22	206	39	206	56
	24	210	42	211	01	211	20	211	40	212	00	212	21
	28	215	52	216	13	216	36	216	58	217	22	217	47
♈	2	221	02	221	26	221	52	222	17	222	45	223	13
	6	226	12	226	39	227	08	227	37	228	08	228	40
	10	231	24	231	54	232	25	232	58	233	31	234	06
	14	236	35	237	07	237	41	238	18	238	54	239	32
	18	241	45	242	21	242	58	243	37	244	16	244	58
	22	246	55	247	33	248	13	248	54	249	37	250	22
	26	252	03	252	44	253	26	254	10	254	56	255	43
	30	257	09	257	52	258	37	259	23	260	12	261	02

S.	D.	42	43	44	45	46	47
♈	0	257 09	257 52	258 37	259 23	260 12	261 02
	4	262 13	262 58	263 45	264 34	265 25	266 18
	8	267 13	267 59	268 49	269 40	270 33	271 29
	12	272 08	272 56	273 48	274 40	275 35	276 34
	16	276 59	277 49	278 42	279 36	280 32	281 32
	20	281 44	282 35	283 28	284 24	285 21	286 22
	24	286 21	287 13	288 07	289 04	290 02	291 03
	28	290 51	291 43	292 39	293 34	294 33	295 35
♉	2	295 12	296 05	296 59	297 56	298 56	299 57
	6	299 26	300 17	301 12	302 08	303 07	304 08
	10	303 30	304 21	305 14	306 10	307 07	308 08
	14	307 24	308 14	309 07	310 01	310 57	311 57
	18	311 09	311 58	312 49	313 42	314 36	315 35
	22	314 47	315 33	316 22	317 13	318 07	319 02
	26	318 14	318 58	319 46	320 35	321 26	322 19
♊	0	321 33	322 16	323 01	323 47	324 36	325 26
	4	324 44	325 25	326 07	326 50	327 37	328 24
	8	327 55	328 23	329 03	329 45	330 27	331 12
	12	330 42	331 16	331 54	332 32	333 13	333 55
	16	333 31	334 04	334 38	335 13	335 50	336 29
	20	336 14	336 44	337 15	337 48	339 21	338 56
	24	338 51	339 19	339 48	340 17	340 47	341 19
	28	341 23	341 48	342 14	342 40	343 07	343 35
♋	2	343 53	344 14	344 36	345 59	345 23	345 48
	6	346 18	346 36	346 55	347 16	347 36	347 57
	10	348 40	348 56	349 11	349 28	349 45	350 02
	14	351 00	351 12	351 24	351 37	351 51	352 05
	18	353 16	353 26	353 35	353 45	353 55	354 05
	22	355 32	355 38	355 44	355 51	355 58	356 05
	26	357 47	357 49	357 52	357 56	358 00	358 03
	30	360 00	360 00	360 00	360 00	360 00	360 00

S.	D.	47.28		48		49		50		51		51,32	
♈	0	000	00	000	00	000	00	000	00	000	00	000	00
	4	001	54	001	53	001	50	001	46	001	41	001	39
	8	003	52	003	48	003	40	003	32	003	24	003	19
	12	005	50	005	44	005	32	005	22	005	08	005	01
	16	007	48	007	40	007	25	007	09	006	52	006	43
	20	009	49	009	39	009	20	009	00	008	40	008	28
	24	011	53	011	41	011	18	010	55	010	30	010	16
	28	014	00	013	46	013	20	012	52	012	23	012	07
♉	2	016	10	015	56	015	25	014	53	014	20	014	01
	6	018	25	018	09	017	34	016	58	016	21	016	00
	10	020	44	020	21	019	49	019	09	018	28	018	05
	14	023	11	022	51	022	10	021	26	020	40	020	14
	18	025	44	025	23	024	28	023	49	023	01	022	33
	22	028	28	028	02	027	13	026	21	025	28	024	58
	26	031	13	030	46	029	53	028	59	028	01	027	30
♊	0	034	08	033	41	032	45	031	47	030	46	030	12
	4	037	14	036	45	035	47	034	46	033	42	033	06
	8	040	29	040	01	038	59	037	55	036	48	036	08
	12	043	54	043	24	042	22	041	14	040	05	039	26
	16	047	32	047	01	045	56	044	47	043	35	042	55
	20	051	23	050	24	049	42	048	32	047	19	046	36
	24	055	21	054	48	053	40	052	29	051	13	050	30
	28	059	30	058	58	057	50	056	38	055	22	054	39
♋	2	063	52	063	20	062	11	061	00	059	44	059	01
	6	068	25	067	52	066	44	065	33	064	18	063	35
	10	073	07	072	34	071	28	070	18	069	04	068	22
	14	077	58	077	26	076	20	075	12	073	59	073	19
	18	082	56	082	26	081	24	080	16	079	08	078	28
	22	088	03	087	34	086	32	085	21	084	21	083	43
	26	093	16	092	46	091	48	090	47	089	42	089	06
	30	098	32	098	05	097	09	096	11	095	10	094	36

S.	D.	47.28		48		49		50		51		51.32	
♑	0	098	32	098	05	097	09	096	11	095	10	094	36
	4	103	53	103	27	102	34	101	40	100	42	100	10
	8	109	16	108	52	108	03	107	12	106	18	105	48
	12	114	42	114	19	113	34	112	46	111	57	111	29
	16	120	09	119	48	119	07	118	23	117	37	117	11
	20	125	37	125	17	124	39	123	59	123	18	122	55
	24	131	05	130	49	130	13	129	37	129	01	128	40
	28	136	32	136	18	135	48	135	16	134	43	134	24
♒	2	142	01	141	47	141	21	140	53	140	24	140	08
	6	147	26	147	17	146	54	146	30	146	06	145	52
	10	152	55	152	45	152	26	152	06	151	46	151	34
	14	158	20	158	13	157	58	157	42	157	26	159	16
	18	163	45	163	41	163	29	163	17	163	05	162	58
	22	169	11	169	08	169	00	168	52	168	44	168	39
	26	174	36	174	34	174	31	174	27	174	22	174	20
♓	0	180	00	180	00	180	00	180	00	180	00	180	00
	4	185	24	185	26	185	29	185	33	185	38	185	40
	8	190	49	190	52	191	00	191	08	191	16	191	21
	12	196	15	196	19	196	31	196	43	196	55	197	02
	16	201	40	201	47	202	02	202	18	202	34	202	44
	20	207	05	207	15	207	34	207	54	208	14	208	26
	24	212	33	212	43	213	06	213	30	213	54	214	08
	28	217	59	218	13	218	39	219	07	219	36	219	52
♈	2	223	28	223	42	224	12	224	44	225	17	225	36
	6	228	19	229	11	229	47	230	23	230	59	231	20
	10	234	21	234	43	235	21	236	01	236	42	237	05
	14	239	51	240	12	240	53	241	37	241	23	242	49
	18	245	18	245	41	246	26	247	14	247	03	248	31
	22	250	44	251	08	251	57	253	48	253	42	254	12
	26	256	07	256	33	257	26	258	20	259	18	259	50
	30	261	28	261	55	262	51	263	49	264	50	265	24

☉.	D.	47 28	48	49	50	51	51.32
♌	0	261 28	261 55	262 51	263 49	264 50	265 24
	4	266 44	267 14	268 12	269 13	270 18	270 54
	8	272 17	272 26	273 28	274 33	275 39	276 17
	12	277 04	277 34	278 36	279 44	280 52	281 32
	16	282 02	282 34	283 40	284 48	286 01	286 41
	20	286 53	287 26	288 32	289 42	290 56	291 38
	24	291 35	292 08	293 16	294 27	295 42	296 25
	28	296 08	296 40	297 49	299 00	300 16	300 59
♍	2	300 30	301 02	302 10	303 32	304 38	305 21
	6	304 39	305 12	306 20	307 31	308 47	309 30
	10	308 39	309 12	310 18	311 28	312 42	313 24
	14	312 28	312 59	314 04	315 13	316 25	317 06
	18	316 06	316 36	317 38	318 46	319 55	320 34
	22	319 31	319 59	321 01	322 05	323 12	323 52
	26	322 46	323 15	324 13	325 14	326 18	326 54
♎	0	325 52	326 19	327 15	328 13	329 14	329 48
	4	328 47	329 14	330 07	331 01	331 59	332 30
	8	331 36	331 58	332 47	333 39	334 32	335 02
	12	334 16	334 37	335 22	336 11	336 59	337 27
	16	336 49	337 09	337 50	338 34	339 20	339 46
	20	339 15	339 33	340 11	340 51	341 32	341 55
	24	341 35	341 51	342 26	343 02	343 39	344 00
	28	343 50	344 04	344 35	345 07	345 40	345 59
♏	2	346 01	346 14	346 40	347 08	347 37	347 53
	6	348 08	348 19	348 42	349 05	349 30	349 44
	10	350 11	350 21	350 40	351 00	351 20	351 32
	14	352 12	352 20	352 35	352 51	353 08	353 17
	18	354 11	354 16	354 28	354 40	354 52	354 59
	22	356 07	356 12	356 20	356 28	356 36	356 41
	26	358 04	358 07	358 10	358 14	358 19	358 21
	30	360 00	360 00	360 00	360 00	360 00	360 00

S.	D.	52	53	54	55	56	57
♈	0	000 00	000 00	000 00	000 00	000 00	000 00
	4	001 37	001 32	001 28	001 23	001 18	001 12
	8	003 15	003 06	002 57	002 47	002 37	002 26
	12	004 55	004 41	004 27	004 12	003 57	003 40
	16	006 35	006 17	005 58	005 39	005 17	004 56
	20	008 18	007 55	007 32	007 07	006 41	006 13
	24	010 04	009 36	009 08	008 38	008 06	007 33
	28	011 53	011 20	010 47	010 13	009 35	008 56
♉	2	013 45	013 08	012 20	011 50	011 07	010 22
	6	015 42	015 01	014 18	013 32	012 44	011 52
	10	017 45	016 59	016 11	015 20	014 26	013 29
	14	019 52	019 02	018 08	017 30	016 13	015 11
	18	022 08	021 13	020 15	019 14	018 09	017 00
	22	024 31	023 31	022 28	021 22	020 03	018 56
	26	027 02	025 58	024 50	023 39	022 20	021 01
♊	0	029 42	028 34	027 22	026 06	024 51	028 17
	4	032 34	031 22	030 06	028 44	027 19	025 45
	8	035 36	034 22	033 01	031 35	030 05	028 27
	12	038 51	037 32	036 08	034 41	033 03	031 21
	16	042 19	040 57	039 31	037 59	036 20	034 33
	20	045 59	044 36	043 07	041 33	039 51	038 00
	24	049 53	048 29	046 58	045 23	043 38	041 46
	28	054 02	052 35	051 05	059 28	047 44	045 51
♋	2	058 24	056 59	055 28	053 49	052 05	050 12
	6	062 58	061 33	060 03	058 27	056 43	054 50
	10	067 45	066 22	064 53	063 19	061 37	059 46
	14	072 44	071 22	069 56	068 24	066 44	064 57
	18	077 52	076 34	075 10	073 41	072 05	070 23
	22	083 10	081 55	080 35	079 08	077 37	075 59
	26	088 34	087 22	086 06	084 45	083 19	081 46
	30	094 06	092 58	091 46	090 38	089 08	087 41

S.	D.	52		53		54		55		56		57	
♌	0	094	06	092	58	091	46	090	38	089	08	087	41
	4	099	42	098	38	097	31	096	20	095	04	093	42
	8	105	22	104	22	103	15	102	14	101	03	099	47
	12	111	04	110	09	109	11	108	10	107	05	105	56
	16	116	49	115	59	115	05	114	10	113	10	112	07
	20	122	35	121	49	121	01	120	10	119	16	118	19
	24	128	22	127	41	126	57	126	12	125	24	124	31
	28	134	08	133	31	132	53	132	13	131	30	130	45
♍	2	139	54	139	22	138	48	138	13	137	36	136	57
	6	145	40	145	12	144	43	144	13	143	42	143	08
	10	151	24	151	01	150	38	150	13	149	47	149	19
	14	157	08	156	50	156	31	156	11	155	51	155	29
	18	162	52	162	38	162	24	162	10	161	54	161	37
	22	168	35	168	26	168	16	168	07	167	57	167	45
	26	174	18	174	13	174	08	174	04	173	59	173	53
♎	0	180	00	180	00	180	00	180	00	180	00	180	00
	4	185	42	185	47	185	52	185	56	186	01	186	07
	8	191	25	191	34	191	44	191	53	192	03	192	15
	12	197	08	197	22	197	36	197	50	198	06	198	23
	16	202	52	203	10	203	29	203	49	204	09	204	31
	20	208	36	208	59	209	22	209	47	210	13	210	41
	24	214	20	214	48	215	17	215	47	216	18	216	52
	28	220	06	220	38	221	12	221	47	222	14	223	03
♏	2	225	52	226	29	227	07	227	47	228	30	229	15
	6	231	38	232	19	233	33	233	48	234	36	235	29
	10	237	25	238	11	238	59	239	50	240	44	241	41
	14	243	11	244	01	244	55	245	50	246	50	247	53
	18	248	56	249	51	250	49	251	50	252	55	254	04
	22	254	38	255	38	256	41	257	47	258	57	260	13
	26	260	18	261	22	262	29	263	40	264	56	266	18
	30	265	54	267	02	268	14	269	30	270	52	272	19

S.	D.	52		53		54		55		56		57	
♈	0	265	54	267	02	268	14	269	30	270	52	272	19
	4	271	26	272	38	273	54	275	15	276	41	278	14
	8	276	50	278	05	279	25	280	52	282	23	284	01
	12	282	08	283	26	284	50	286	19	287	55	289	37
	16	287	16	288	38	290	04	291	36	293	16	295	03
	20	292	15	293	38	295	07	296	41	298	22	300	14
	24	297	02	298	27	299	57	301	33	303	17	305	10
	28	301	36	303	01	304	32	306	11	307	55	309	48
♉	2	307	58	307	25	308	55	310	32	312	16	314	09
	6	310	07	312	31	313	02	314	37	316	21	318	14
	10	314	01	315	24	316	53	318	27	320	09	322	00
	14	317	41	319	03	320	29	322	01	323	40	325	27
	18	321	09	322	28	323	52	325	19	326	57	328	39
	22	324	24	325	38	326	59	328	25	329	55	331	33
	26	327	26	328	38	329	54	331	16	332	42	334	15
♊	0	330	18	331	26	332	38	333	54	335	16	336	43
	4	332	58	334	02	335	10	336	21	337	51	338	59
	8	335	29	336	29	337	32	338	38	339	48	341	04
	12	337	52	338	47	339	45	340	46	341	38	343	00
	16	340	08	340	58	341	52	342	47	343	47	344	49
	20	342	15	343	01	343	49	344	40	345	34	346	31
	24	344	18	344	59	345	42	346	28	347	16	348	08
	28	346	15	346	52	347	30	348	10	348	53	349	38
♋	2	348	07	348	40	349	13	349	47	350	25	351	04
	6	349	56	350	24	350	52	351	22	351	54	352	27
	10	351	42	352	05	352	28	352	53	353	19	353	47
	14	353	25	353	43	354	02	354	21	354	43	355	04
	18	355	05	355	19	355	33	355	48	356	03	356	20
	22	356	45	356	54	357	03	357	13	357	23	357	34
	26	358	23	358	28	358	32	358	37	358	42	358	48
	30	360	00	360	00	360	00	360	00	360	00	360	00

Pole	1	2	3	4	5	6	7
0	0 47	1 35	2 23	3 10	3 59	4 48	5 37
1	0 46	1 33	2 20	3 06	3 54	4 42	5 30
2	0 45	1 31	2 17	3 03	3 49	4 35	5 22
3	0 44	1 29	2 13	2 47	3 43	4 29	5 15
4	0 43	1 27	2 10	2 53	3 38	4 23	5 07
5	0 42	1 25	2 07	2 49	3 33	4 16	5 00
6	0 41	1 23	2 04	2 45	3 27	4 10	4 53
7	0 40	1 21	2 01	2 40	3 22	4 04	4 45
8	0 39	1 18	1 58	2 36	3 17	3 57	4 38
9	0 38	1 16	1 54	2 32	3 11	3 51	4 30
10	0 36	1 14	1 51	2 28	3 06	3 44	4 23
11	0 35	1 12	1 48	2 23	3 01	3 38	4 15
12	0 34	1 10	1 45	2 19	2 55	3 31	4 07
13	0 33	1 07	1 41	2 14	2 50	3 25	4 00
14	0 32	1 05	1 38	2 10	2 44	3 18	3 52
15	0 31	1 03	1 35	2 06	2 38	3 11	3 44
16	0 30	1 01	1 31	2 01	2 33	3 04	3 36
17	0 29	0 58	1 28	1 56	2 27	2 58	3 28
18	0 28	0 56	1 24	1 52	2 21	2 51	3 20
19	0 26	0 54	1 21	1 47	2 15	2 44	3 12
20	0 25	0 51	1 17	1 43	2 10	2 36	3 03
21	0 24	0 49	1 14	1 38	2 04	2 29	2 55
22	0 23	0 46	1 10	1 33	1 57	2 22	2 46
23	0 22	0 44	1 06	1 28	1 51	2 15	2 38
24	0 20	0 42	1 03	1 23	1 45	2 07	2 29
25	0 19	0 39	0 59	1 18	1 39	1 59	2 20
26	0 18	0 36	0 55	1 13	1 32	1 52	2 11
27	0 16	0 34	0 51	1 07	1 26	1 44	2 02
28	0 15	0 31	0 47	1 02	1 19	1 36	1 52
29	0 14	0 28	0 43	0 57	1 12	1 28	1 43
30	0 12	0 26	0 39	0 51	1 05	1 19	1 33
31	0 11	0 23	0 35	0 46	0 58	1 11	1 23
32	0 10	0 20	0 30	0 40	0 51	1 02	1 13

North declination under the earth, and South above it.

Position.	1		2		3		4		5		6		7	
South Declination under the earth, and North above it.	32	1	24	2	50	4	16	5	40	7	07	8	34	10	01
	31	1	23	2	47	4	11	5	34	7	00	8	25	9	51
	30	1	22	2	44	4	07	5	29	6	53	8	17	9	41
	29	1	20	2	42	4	03	5	23	6	46	8	08	9	31
	28	1	19	2	39	3	59	5	18	6	39	8	00	9	22
	27	1	18	2	36	3	55	5	13	6	32	7	52	9	12
	26	1	16	2	34	3	51	5	07	6	26	7	44	9	03
	25	1	15	2	31	3	47	5	02	6	19	7	37	8	54
	24	1	14	2	28	3	43	4	57	6	13	7	29	8	45
	23	1	12	2	26	3	40	4	52	6	07	7	21	8	36
	22	1	11	2	24	3	36	4	47	6	01	7	14	8	28
	21	1	10	2	21	3	32	4	42	5	54	7	07	8	19
	20	1	09	2	19	3	29	4	37	5	48	7	00	8	11
	19	1	08	2	16	3	25	4	33	5	43	6	52	8	02
	18	1	06	2	14	3	22	4	28	5	37	6	45	7	54
	17	1	05	2	12	3	18	4	24	5	31	6	38	7	46
	16	1	04	2	09	3	15	4	19	5	25	6	32	7	38
	15	1	03	2	07	3	11	4	14	5	20	6	25	7	30
	14	1	02	2	05	3	08	4	10	5	14	6	18	7	22
	13	1	01	2	03	3	05	4	06	5	08	6	11	7	14
	12	1	00	2	00	3	01	4	01	5	03	6	05	7	07
	11	0	59	1	58	2	58	3	57	4	57	5	58	6	59
	10	0	58	1	56	2	55	3	52	4	52	5	52	6	51
	9	0	56	1	54	2	51	3	48	4	47	5	45	6	44
	8	0	55	1	52	2	48	3	44	4	41	5	39	6	36
	7	0	54	1	50	2	45	3	40	4	36	5	32	6	29
	6	0	53	1	48	2	42	3	35	4	31	5	26	6	21
	5	0	52	1	45	2	39	3	31	4	25	5	20	6	14
	4	0	51	1	43	2	35	3	27	4	20	5	13	6	07
	3	0	50	1	41	2	32	3	23	4	15	5	07	5	59
	2	0	49	1	39	2	29	3	18	4	09	5	01	5	52
	1	0	48	1	37	2	26	3	14	4	04	4	54	5	44
	0	0	47	1	35	2	23	3	10	3	59	4	48	5	37

Pole	8	9	10	11	12	13	14
0	6 27	7 13	8 03	8 53	9 44	10 34	11 26
1	6 19	7 04	7 52	8 41	9 31	10 20	11 11
2	6 10	6 54	7 42	8 30	9 19	10 06	10 56
3	6 02	6 44	7 31	8 18	9 06	9 52	10 41
4	5 53	6 35	7 21	8 06	8 53	9 38	10 26
5	5 45	6 25	7 10	7 55	8 40	9 25	10 11
6	5 36	6 16	6 59	7 43	8 27	9 11	9 56
7	5 28	6 06	6 49	7 31	8 14	8 57	9 41
8	5 19	5 57	6 38	7 19	8 01	8 42	9 26
9	5 11	5 47	6 27	7 07	7 48	8 28	9 10
10	5 02	5 37	6 16	6 55	7 35	8 14	8 55
11	4 53	5 27	6 05	6 43	7 22	8 00	8 39
12	4 44	5 17	5 54	6 31	7 09	7 45	8 24
13	4 35	5 07	5 43	6 19	6 55	7 31	8 08
14	4 27	4 57	5 32	6 06	6 42	7 16	7 52
15	4 17	4 47	5 21	5 54	6 28	7 01	7 36
16	4 08	4 37	5 09	5 41	6 14	6 46	7 20
17	3 59	4 26	4 58	5 29	6 00	6 31	7 04
18	3 50	4 16	4 46	5 16	5 46	6 16	6 47
19	3 41	4 05	4 34	5 03	5 27	6 00	6 31
20	3 31	3 55	4 22	4 50	5 14	5 45	6 14
21	3 21	3 44	4 10	4 36	5 03	5 29	5 56
22	3 12	3 33	3 58	4 23	4 48	5 13	5 39
23	3 02	3 22	3 45	4 09	4 33	4 57	5 19
24	2 52	3 10	3 33	3 55	4 18	4 40	5 04
25	2 42	2 59	3 20	3 41	4 03	4 23	4 45
26	2 31	2 47	3 07	3 37	3 47	4 06	4 27
27	2 21	2 35	2 54	3 12	3 31	3 49	4 08
28	2 10	2 23	2 40	2 57	3 15	3 31	3 49
29	1 59	2 11	2 26	2 42	2 58	3 13	3 29
30	1 48	1 59	2 12	2 26	2 41	2 54	3 09
31	1 36	1 45	1 58	2 11	2 24	2 36	2 49
32	1 25	1 32	1 43	1 54	2 06	2 16	2 28

North declination under the earth, and South above it.

Position.	8		9		10		11		12		13		14	
0	11	29	12	54	14	23	15	52	17	22	18	52	20	24
1	11	18	12	41	14	08	15	35	17	04	18	32	20	03
2	11	06	12	28	13	54	15	20	16	47	18	14	19	43
3	10	55	12	15	13	40	15	04	16	30	17	55	19	23
4	10	44	12	03	13	26	14	49	16	13	17	37	19	03
5	10	33	11	51	13	12	14	34	15	57	17	19	18	44
6	10	24	11	39	12	59	14	19	15	41	17	02	18	25
7	10	12	11	27	12	46	14	05	15	25	16	45	18	07
8	10	02	11	16	12	33	13	51	15	10	16	28	17	48
9	09	52	11	04	12	21	13	37	14	55	16	11	17	33
10	09	42	10	53	12	08	13	23	14	40	15	55	17	13
11	09	33	10	42	11	56	13	10	14	25	15	39	16	56
12	09	23	10	31	11	44	12	56	14	10	15	23	16	38
13	09	13	10	21	11	32	12	43	14	01	15	08	16	21
14	09	04	10	10	11	20	12	30	13	42	14	52	16	05
15	08	55	10	00	11	08	12	17	13	28	14	37	15	48
16	08	46	09	49	10	57	12	05	13	14	14	22	15	32
17	08	37	09	39	10	45	11	52	13	00	14	07	15	16
18	08	27	09	29	10	34	11	40	12	46	13	52	15	00
19	08	19	09	19	10	23	11	27	12	34	13	37	14	44
20	08	10	09	09	10	12	11	15	12	19	13	23	14	28
21	08	01	08	59	10	01	11	03	12	06	13	08	14	13
22	07	52	08	49	09	50	10	51	11	53	12	54	13	57
23	07	43	08	39	09	39	10	39	11	40	12	40	13	42
24	07	35	08	29	09	28	10	27	11	27	12	26	13	26
25	07	26	08	20	09	17	10	15	11	14	12	11	13	11
26	07	18	08	10	09	07	10	03	11	01	11	57	12	56
27	07	09	08	01	08	56	09	51	10	48	11	43	12	41
28	07	01	07	51	08	45	09	40	10	35	11	30	12	26
29	06	52	07	42	08	35	09	28	10	22	11	16	12	11
30	06	44	07	32	08	24	09	16	10	09	11	02	11	56
31	06	35	07	22	08	14	09	05	09	57	10	48	11	41
32	06	27	07	13	08	03	08	53	09	44	10	34	11	26

South declination under the earth, and North above it.

North declination under the earth, and South above it.

Pole	15	16	17	18	19	20	21
0	12 18	13 11	14 04	14 57	15 52	16 48	17 46
1	12 02	12 54	13 46	14 38	15 31	16 26	17 23
2	11 46	12 37	13 27	14 18	15 11	16 04	17 00
3	11 30	12 19	13 09	13 58	14 50	15 42	16 37
4	11 14	12 02	12 50	13 39	14 29	15 21	16 14
5	10 57	11 45	12 32	13 19	14 08	14 59	15 51
6	10 41	11 27	12 14	13 00	13 48	14 36	15 27
7	10 21	11 10	11 55	12 40	13 27	14 14	15 04
8	10 01	10 52	11 36	12 20	13 06	13 52	14 40
9	09 52	10 35	11 17	12 00	12 44	13 30	14 17
10	09 36	10 17	10 59	11 40	12 23	13 07	13 53
11	09 19	09 59	10 40	11 20	12 02	12 45	13 29
12	09 02	09 41	10 20	10 59	11 40	12 22	13 05
13	08 45	09 23	10 01	10 39	11 18	11 59	12 41
14	08 28	09 05	09 42	10 18	10 57	11 36	12 16
15	08 11	08 47	09 22	09 57	10 34	11 12	11 52
16	07 54	08 28	09 02	09 36	10 12	10 49	11 27
17	07 36	08 09	08 42	09 15	09 50	10 25	11 02
18	07 18	07 50	08 22	08 53	09 27	10 01	10 36
19	07 00	07 31	08 01	08 32	09 03	09 36	10 10
20	06 42	07 12	07 41	08 10	08 40	09 11	09 44
21	06 24	06 52	07 20	07 47	08 16	08 46	09 18
22	06 05	06 35	06 58	07 24	07 52	08 21	08 51
23	05 46	06 12	06 37	07 01	07 28	07 55	08 24
24	05 27	05 51	06 15	06 38	07 03	07 29	07 56
25	05 07	05 30	05 52	06 14	06 38	07 02	07 27
26	04 47	05 09	05 29	05 50	06 12	06 34	06 59
27	04 27	04 47	05 06	05 25	05 46	06 07	06 29
28	04 07	04 25	04 43	05 00	05 19	05 39	05 59
29	03 46	04 02	04 19	04 34	04 42	05 10	05 29
30	03 24	03 39	03 54	04 08	04 24	04 40	04 58
31	03 02	03 16	03 29	03 41	03 56	04 10	04 24
32	02 40	02 52	03 03	03 14	03 27	03 39	03 53

Position.	15	16	17	18	19	20	21
32	21 56	23 30	25 05	26 40	28 17	29 57	31 39
31	21 34	23 06	24 39	26 13	27 48	29 26	31 06
30	21 12	22 43	24 14	25 46	27 20	28 56	30 34
29	20 50	22 20	23 49	25 20	27 02	28 26	30 03
28	20 29	21 57	23 25	24 54	26 25	27 55	29 33
27	20 09	21 35	23 02	24 29	25 58	27 29	29 03
26	19 49	21 13	22 39	24 04	25 32	27 02	28 33
25	19 29	20 52	22 16	23 40	25 06	26 34	28 05
24	19 09	20 31	21 53	23 16	24 41	26 07	27 46
23	18 50	20 10	21 31	22 53	24 16	25 41	27 08
22	18 31	19 47	21 10	22 30	23 52	25 15	26 41
21	18 12	19 30	20 48	22 07	23 28	24 50	26 14
20	17 54	19 10	20 27	21 44	23 04	24 25	25 48
19	17 36	18 51	20 07	21 22	22 41	24 00	25 24
18	17 18	18 32	19 46	21 01	22 17	23 35	24 56
17	17 00	18 13	19 26	20 39	21 54	23 11	24 30
16	16 42	17 54	19 06	20 18	21 32	22 47	24 05
15	16 25	17 35	18 46	19 57	21 10	22 24	23 40
14	16 08	17 17	18 26	19 36	20 47	22 00	23 16
13	15 51	16 59	18 07	19 15	20 26	21 37	22 51
12	15 34	16 41	17 48	18 55	20 04	21 14	22 27
11	15 17	16 23	17 28	18 34	19 42	20 51	22 03
10	15 00	16 05	17 09	18 14	19 21	20 29	21 39
9	14 44	15 47	16 51	17 54	19 00	20 06	21 15
8	14 27	15 30	16 32	17 34	18 38	19 44	20 52
7	14 15	15 12	16 13	17 14	18 17	19 22	20 28
6	13 55	14 55	15 54	16 54	17 56	19 00	20 05
5	13 39	14 37	15 36	16 35	17 36	18 37	19 41
4	13 22	14 20	15 18	16 15	17 15	18 15	19 18
3	13 06	14 03	14 59	15 56	16 54	17 54	18 55
2	12 50	13 45	14 41	15 36	16 33	17 32	18 32
1	12 34	13 28	14 22	15 16	16 13	17 10	18 09
0	12 18	13 11	14 04	14 57	15 52	16 48	17 46

South declination under the earth, and North above it.

Pole	22	23	24	25	26	27	28
0	18 44	19 44	20 43	21 45	22 56	23 43	25 00
1	18 20	19 19	20 16	21 17	22 27	23 12	24 28
2	17 55	18 53	19 50	20 49	21 57	22 42	23 56
3	17 31	18 27	19 23	20 21	21 28	22 11	23 24
4	17 07	18 02	18 56	19 53	20 59	21 40	22 52
5	16 42	17 36	18 29	19 25	20 29	21 10	22 20
6	16 18	17 11	18 02	18 56	20 00	20 39	21 48
7	15 53	16 45	17 35	18 28	19 30	20 08	21 15
8	15 29	16 19	17 08	18 00	19 00	19 37	20 43
9	15 04	15 53	16 40	17 31	18 30	19 05	20 10
10	14 39	15 26	16 13	17 02	18 00	18 34	19 37
11	14 14	15 00	15 45	16 33	17 30	18 02	19 04
12	13 48	14 33	15 17	16 04	16 59	17 30	18 31
13	13 23	14 06	14 49	15 34	16 28	16 58	17 57
14	12 57	13 39	14 21	15 04	15 57	16 25	17 23
15	12 31	13 12	13 52	14 34	15 25	15 52	16 49
16	12 05	12 45	13 23	14 04	14 53	15 19	16 14
17	11 38	12 17	12 54	13 33	14 21	14 45	15 39
18	11 11	11 48	12 24	13 02	13 49	14 11	15 03
19	10 44	11 20	11 54	12 31	13 16	13 37	14 27
20	10 17	10 51	11 24	11 59	12 42	13 02	13 51
21	09 49	10 21	10 53	11 26	12 09	12 36	13 14
22	09 20	09 51	10 21	10 53	11 33	11 50	12 36
23	08 51	09 21	09 49	10 20	10 59	11 14	11 57
24	08 22	08 50	09 17	09 46	10 23	10 36	11 18
25	07 52	08 19	08 44	09 11	09 47	09 58	10 39
26	07 22	07 47	08 10	08 36	09 10	09 20	09 58
27	06 51	07 15	07 36	08 00	08 33	08 40	09 17
28	06 20	06 41	07 01	07 24	07 54	08 00	08 35
29	05 48	06 07	06 26	06 49	07 15	07 19	07 54
30	05 15	05 33	05 49	06 08	06 35	06 37	07 01
31	04 41	04 57	05 12	05 29	05 54	05 53	06 22
32	04 07	04 21	04 34	04 49	05 11	05 09	05 39

North declination under the earth, and South above it.

Position.	22	23	24	25	26	27	28
South Declination under the earth, and North above it.	32 33 21	34 57	36 52	38 41	40 41	42 17	44 24
	31 32 47	34 31	36 14	38 01	39 18	41 33	43 38
	30 32 13	33 55	35 37	37 22	39 17	40 49	42 53
	29 31 40	33 21	35 00	36 44	38 37	40 07	42 08
	28 31 08	32 47	34 25	36 06	37 58	39 26	41 25
	27 30 37	32 13	33 50	35 30	37 19	38 46	40 43
	26 30 06	31 41	33 16	34 54	36 42	38 06	40 02
	25 29 36	31 09	32 42	34 19	36 05	37 28	39 21
	24 29 06	30 38	32 09	33 44	35 29	36 50	38 42
	23 28 37	30 07	31 37	33 10	34 53	36 12	38 03
	22 28 08	29 37	31 05	32 37	34 18	35 36	37 24
	21 27 39	29 07	30 33	32 04	33 43	35 00	36 46
	20 27 11	28 37	30 02	31 31	33 10	34 24	36 09
	19 26 44	28 08	29 32	30 59	32 36	33 49	35 33
	18 26 17	27 40	29 02	30 28	32 03	33 15	34 57
	17 25 48	27 11	28 32	29 57	31 31	32 41	34 21
	16 25 23	26 43	28 03	29 26	30 59	32 07	33 46
	15 24 57	26 16	27 34	28 56	30 27	31 34	33 11
	14 24 31	25 49	27 05	28 26	29 55	31 01	32 37
	13 24 05	25 22	26 37	27 56	29 24	30 28	32 03
	12 23 40	24 55	26 09	27 26	28 53	29 56	31 29
	11 23 14	24 28	25 41	26 57	28 22	29 24	30 56
	10 22 49	24 02	25 13	26 28	27 52	28 52	30 23
	9 22 24	23 35	24 46	25 59	27 22	28 21	29 50
	8 21 59	23 09	24 18	25 30	26 52	27 49	29 17
	7 21 35	22 43	23 51	25 02	26 22	27 18	28 45
	6 21 10	22 17	23 24	24 34	25 52	26 47	28 12
	5 20 46	21 52	22 57	24 05	25 23	26 16	27 40
	4 20 21	21 26	22 30	23 37	24 53	25 46	27 08
	3 19 57	21 01	22 03	23 09	24 24	25 15	26 36
	2 19 33	20 35	21 46	22 41	23 55	24 44	26 04
	1 19 08	20 09	21 10	22 13	23 25	24 14	25 32
	0 18 44	19 44	20 43	21 45	22 56	23 43	25 00

Pole	29		30		31		32		33		34		35	
0	26	08	27	18	28	31	29	46	31	04	32	24	33	49
1	25	35	26	43	27	55	29	09	30	25	31	44	33	07
2	25	01	26	09	27	19	28	31	29	46	31	03	32	25
3	24	28	25	34	26	43	27	53	29	07	30	22	31	43
4	23	55	24	59	26	07	27	16	28	28	29	42	31	01
5	23	21	24	14	25	30	26	38	27	49	29	01	30	18
6	22	48	23	49	24	54	26	00	27	09	28	20	29	36
7	22	14	23	14	24	17	25	22	26	30	27	39	28	53
8	21	40	22	39	23	40	24	44	25	50	26	58	28	10
9	21	06	22	03	23	03	24	05	25	10	26	16	27	27
10	20	31	21	27	22	26	23	26	24	29	25	34	26	43
11	19	57	20	51	21	49	22	47	23	49	24	52	26	00
12	19	22	20	15	21	11	22	08	23	08	24	09	25	15
13	18	47	19	38	20	33	21	28	22	27	23	26	24	31
14	18	12	19	01	19	54	20	48	21	45	22	43	23	46
15	17	36	18	24	19	15	20	08	21	03	21	59	23	00
16	17	00	17	46	18	36	19	27	20	20	21	15	22	14
17	16	23	17	08	17	56	18	45	19	37	20	30	21	27
18	15	45	16	29	17	15	18	03	18	53	19	44	20	40
19	15	08	15	50	16	35	17	21	18	09	18	58	19	52
20	14	30	15	10	15	53	16	37	17	24	18	11	19	03
21	13	51	14	30	15	11	15	53	16	38	17	24	18	10
22	13	12	13	49	14	28	15	09	15	51	16	15	17	22
23	12	31	13	07	13	44	14	23	15	04	15	46	16	32
24	11	51	12	24	13	00	13	37	14	16	14	55	15	39
25	11	09	11	41	12	15	12	50	13	26	14	04	14	46
26	10	27	10	57	11	29	12	01	12	36	13	12	13	51
27	09	34	10	12	10	41	11	12	11	45	12	18	12	55
28	09	00	09	15	09	53	10	22	10	52	11	23	11	58
29	08	14	08	38	09	04	09	30	09	58	10	27	10	59
30	07	28	07	50	08	13	08	37	09	03	09	29	09	58
31	06	41	07	00	07	21	07	33	08	06	08	29	08	56
32	05	52	06	09	06	28	06	47	07	08	07	38	07	52

North declination under the earth, and South above it.

Position.	29	30	31	32	33	34	35
32	46 24	48 27	50 34	52 45	55 00	57 10	59 46
31	45 35	47 36	49 41	51 49	54 02	56 19	58 42
30	44 48	46 46	48 49	50 55	53 05	55 19	57 40
29	44 02	45 58	47 58	50 02	52 10	54 41	56 39
28	43 16	45 11	47 09	49 10	51 16	53 25	55 40
27	42 32	44 24	46 21	48 20	50 23	52 30	54 43
26	41 49	43 39	45 33	47 31	49 32	51 36	53 47
25	41 07	42 55	44 47	46 42	48 42	50 44	52 52
24	40 25	42 12	44 02	45 55	47 52	49 53	51 59
23	39 45	41 29	43 18	45 09	47 04	49 02	51 06
22	39 04	40 47	42 34	44 23	46 16	48 13	50 16
21	38 25	40 06	41 51	43 39	45 30	47 24	49 28
20	37 46	39 26	41 09	42 55	44 44	46 37	48 35
19	37 08	38 46	40 27	42 11	43 59	45 50	47 46
18	36 31	38 07	39 47	41 29	43 15	45 04	46 58
17	35 53	37 28	39 06	40 47	42 31	44 18	46 11
16	35 16	36 50	38 26	40 05	41 48	43 33	45 24
15	34 40	36 12	37 47	39 24	41 05	42 49	44 38
14	34 04	35 35	37 08	38 44	40 23	42 05	43 52
13	33 29	34 58	36 29	38 04	39 41	41 22	43 07
12	32 54	34 21	35 51	37 24	39 00	40 39	42 23
11	32 19	33 45	35 13	36 45	38 19	39 56	41 38
10	31 45	33 09	34 36	36 06	37 39	39 14	40 55
9	31 10	32 33	33 56	35 27	36 58	38 32	40 11
8	30 36	31 57	33 22	34 48	36 18	37 40	39 28
7	30 02	31 22	32 55	34 10	35 38	37 09	38 45
6	29 28	30 47	32 08	33 32	34 59	36 28	38 02
5	28 55	30 12	31 32	32 54	34 19	35 47	37 20
4	28 21	29 37	30 55	32 16	33 40	35 06	36 37
3	27 48	29 02	30 19	31 39	33 01	34 26	35 55
2	27 15	28 27	29 43	31 01	32 22	33 45	35 13
1	26 41	27 53	29 07	30 23	31 43	33 04	34 31
0	26 08	27 18	28 31	29 46	31 04	32 24	33 49

South Declination under the earth, and North above it.

Pole	36	37	38	39	40	41	42
0	35 16	36 47	38 23	40 04	41 49	43 42	45 41
1	34 32	36 02	37 36	39 15	40 59	42 50	44 47
2	33 49	35 06	36 49	38 27	40 08	41 58	43 53
3	33 05	34 31	36 02	37 38	39 18	41 05	42 59
4	32 21	33 46	35 15	36 49	38 27	40 13	42 03
5	31 37	33 00	34 28	36 00	37 36	39 20	41 10
6	30 53	32 14	33 40	35 12	36 45	38 27	40 15
7	30 09	31 28	32 53	34 22	35 54	37 34	39 20
8	29 24	30 42	32 05	33 32	35 03	36 41	38 25
9	28 40	29 56	31 17	32 42	34 11	35 47	37 29
10	27 54	29 09	30 28	31 51	33 19	34 53	36 33
11	27 09	28 22	29 39	31 01	32 26	33 58	35 36
12	26 23	27 34	28 49	30 09	31 33	33 03	34 39
13	25 40	26 46	27 59	29 18	30 39	32 07	33 41
14	24 50	25 57	27 09	28 25	29 44	31 11	32 43
15	24 02	25 08	26 18	27 22	28 49	30 14	31 43
16	23 04	24 18	25 26	26 38	27 54	29 16	30 43
17	22 26	23 28	24 34	25 44	26 57	28 17	29 42
18	21 37	22 37	23 41	24 49	26 00	27 18	28 40
19	20 47	21 45	22 47	23 53	25 01	26 17	27 37
20	19 56	20 52	21 52	22 56	24 02	25 15	26 33
21	19 04	19 58	20 56	21 57	23 02	24 12	25 28
22	18 11	19 03	19 59	20 58	22 00	23 08	24 21
23	17 18	18 08	19 01	19 58	20 47	22 03	23 13
24	16 24	17 11	18 02	18 56	19 43	20 56	22 03
25	15 28	16 13	17 01	17 53	18 47	19 47	20 51
26	14 31	15 13	15 59	16 48	17 39	18 37	19 38
27	13 32	14 02	14 55	15 42	16 30	17 25	18 23
28	12 23	13 10	13 50	14 34	15 19	16 11	17 05
29	11 31	12 06	12 43	13 24	14 06	14 54	15 45
30	10 28	11 00	11 34	12 12	12 50	13 35	12 22
31	09 23	09 52	10 23	10 57	11 32	12 13	12 56
32	08 16	08 42	09 10	09 10	10 18	10 48	11 27

North declination under the earth, and South above it.

Position.	36	37	38	39	40	41	42
32	62 16	64 52	67 36	70 58	73 20	76 36	79 55
31	61 09	63 42	66 23	69 11	72 06	75 11	78 26
30	60 04	62 34	65 12	67 56	70 48	73 49	77 00
29	59 01	61 28	64 03	66 44	69 32	72 30	75 38
28	57 59	60 24	62 56	65 34	68 19	71 13	74 17
27	57 00	59 22	61 51	64 26	67 18	69 59	72 59
26	56 01	58 21	60 47	63 20	65 59	68 47	71 44
25	55 04	57 21	59 44	62 15	64 51	67 34	70 31
24	54 08	56 23	58 44	61 12	63 45	66 28	69 19
23	53 14	55 26	57 45	60 10	62 41	65 21	68 09
22	52 21	54 31	56 47	59 10	61 38	64 16	67 01
21	51 28	53 36	55 50	58 11	60 36	63 12	65 54
20	50 36	52 42	54 54	57 12	59 36	62 09	64 49
19	49 45	51 49	53 59	56 15	58 37	61 07	63 45
18	48 55	50 57	53 05	55 19	57 38	60 06	62 42
17	48 06	50 06	52 12	54 24	56 41	59 07	61 40
16	47 18	49 16	51 20	53 30	55 54	58 08	60 39
15	46 30	48 26	50 28	52 36	54 49	57 10	59 39
14	45 42	47 37	49 37	51 43	53 54	56 13	58 39
13	44 52	46 48	48 47	50 50	52 59	55 17	57 41
12	44 09	46 00	47 57	49 59	52 05	54 21	56 43
11	43 23	45 12	47 07	49 07	51 12	53 26	55 46
10	43 38	44 25	46 18	48 17	50 19	52 31	54 49
9	41 52	43 38	45 29	47 26	49 27	51 37	53 53
8	41 08	42 52	44 41	46 36	48 35	50 43	52 57
7	40 23	42 06	43 53	45 46	47 54	49 50	52 02
6	39 39	41 20	43 06	44 56	46 53	48 57	51 07
5	38 55	40 34	42 18	44 08	46 02	48 01	50 12
4	38 11	39 48	41 31	43 19	45 11	47 11	49 18
3	37 27	39 03	40 44	42 30	44 20	46 19	48 23
2	36 42	38 18	39 57	41 41	43 30	45 26	47 29
1	36 00	37 32	39 10	40 53	42 39	44 34	46 35
0	35 16	36 47	38 23	40 04	41 49	43 42	45 41

South declination under the earth, and North above it.

Pole	43		44		45		46		47		48		49	
0	47	48	50	07	52	36	55	19	58	24	61	56	66	03
1	46	52	49	09	51	36	54	17	57	20	60	49	64	54
2	45	56	48	11	50	36	53	15	56	15	59	43	63	45
3	45	00	47	13	49	36	52	12	55	11	58	36	62	36
4	44	04	46	15	48	35	51	10	54	06	57	29	61	26
5	43	07	45	16	47	35	50	07	53	01	56	21	60	16
6	42	11	44	17	46	34	49	04	51	56	55	14	59	06
7	41	14	43	18	45	33	48	01	50	50	54	06	57	56
8	40	16	42	19	44	31	46	57	49	44	52	57	56	49
9	39	18	41	19	43	29	45	53	48	37	51	41	55	33
10	38	20	40	19	42	27	44	48	47	30	50	38	54	21
11	37	21	39	18	41	23	43	32	46	22	49	28	53	08
12	36	22	38	16	40	20	42	36	45	13	48	17	51	54
13	35	22	37	1	39	15	41	29	44	04	47	05	50	39
14	34	21	36	11	38	10	40	29	42	54	45	15	49	23
15	33	20	35	07	37	04	39	12	41	42	44	37	48	06
16	32	17	34	02	35	46	38	03	40	30	43	22	46	47
17	31	14	32	57	34	48	36	52	39	16	42	05	45	27
18	30	10	31	50	33	38	35	39	38	01	40	47	44	06
19	29	04	30	42	32	27	34	26	36	44	39	27	42	43
20	27	58	29	32	31	15	33	11	35	26	38	05	41	18
21	26	48	28	11	30	02	31	54	34	06	36	42	39	51
22	25	40	27	09	28	46	30	35	33	44	35	16	38	21
23	24	29	25	55	27	29	29	14	31	19	33	48	36	49
24	23	16	24	39	26	10	27	52	29	53	32	18	35	59
25	22	01	23	21	24	48	26	27	28	24	30	44	33	37
26	20	45	22	01	23	25	24	59	26	52	29	08	31	55
27	19	26	20	38	21	58	23	28	25	17	27	28	30	10
28	18	04	19	13	20	29	21	54	23	18	25	44	28	20
29	16	40	17	45	18	56	20	17	21	56	23	56	26	26
30	15	03	16	14	17	20	18	36	19	09	22	03	24	26
31	13	50	14	39	15	40	16	50	18	17	20	04	22	19
32	12	10	13	00	13	56	15	00	16	20	17	59	20	26

North declination under the earth, and South above it.

Position.	43	44	45	46	47	48	49
32	83 26	87 14	91 16	95 38	100 28	106 53	113 00
31	82 46	85 35	89 32	93 48	98 31	103 48	109 47
30	80 23	84 00	87 52	92 02	96 39	101 49	107 40
29	78 56	82 29	86 16	90 21	94 52	99 56	105 40
28	77 32	81 01	84 43	88 44	93 10	98 08	103 46
27	76 10	80 36	83 14	87 10	91 31	96 24	101 56
26	74 51	78 13	81 47	85 39	89 56	94 44	100 11
25	73 35	76 53	80 24	84 11	88 24	93 08	98 29
24	72 20	75 35	79 02	82 46	86 55	91 34	96 07
23	71 07	74 13	77 43	81 24	85 29	90 04	95 17
22	69 56	73 05	76 26	80 03	84 04	89 36	93 45
21	68 47	71 53	75 10	78 44	82 42	87 10	92 15
20	67 38	70 42	73 57	77 27	81 22	85 47	90 48
19	66 32	69 32	72 45	76 12	80 04	84 25	89 22
18	65 26	68 24	71 34	74 59	78 47	83 05	88 00
17	64 22	67 17	70 24	73 46	77 32	81 47	86 39
16	63 19	66 12	69 16	72 35	76 18	80 30	85 19
15	62 16	65 07	68 08	71 26	75 06	79 15	84 00
14	61 15	64 03	67 02	70 17	73 54	78 01	82 43
13	60 14	63 00	65 57	69 09	72 44	76 47	81 27
12	59 14	61 58	64 52	68 02	71 35	75 35	80 12
11	58 15	60 56	63 49	66 06	70 26	74 24	78 58
10	57 16	59 55	62 45	65 50	69 18	73 14	77 45
9	56 18	58 55	61 43	64 45	68 11	72 04	76 33
8	55 20	57 55	60 41	63 41	67 04	70 55	75 21
7	54 22	56 56	59 39	62 37	65 58	69 46	74 10
6	53 25	55 57	58 38	61 34	64 52	68 38	73 00
5	52 29	54 58	57 37	60 31	63 47	67 30	71 50
4	51 32	53 59	56 37	59 28	62 42	66 23	70 40
3	50 36	53 01	55 36	58 26	61 37	65 16	69 30
2	49 40	52 03	54 36	57 25	60 32	64 09	68 21
1	48 44	51 05	53 36	56 21	59 28	63 03	67 12
0	47 48	50 07	52 36	55 19	58 24	61 56	66 03

South declination under the earth, and North above it.

Pole of	50		51		51.32		*Position*	50		51		51.32	
0	71	14	78	58	90	00		32	119	20	129	20	141	52
1	70	02	77	36	88	05		31	116	58	126	44	139	08
2	68	51	76	22	87	29		30	114	43	124	19	136	37
3	67	39	75	07	86	13		29	112	35	122	00	134	14
4	66	27	73	53	85	58		28	110	33	119	52	132	00
5	65	24	72	38	83	41		27	108	37	117	50	129	53
6	64	02	71	23	82	24		26	106	56	115	52	123	52
7	62	49	70	07	81	07		25	105	00	114	00	125	56
8	61	36	68	50	79	49		24	103	17	112	10	124	05
9	60	21	67	33	78	30		23	101	37	110	27	122	17
10	59	06	66	15	77	11		22	100	01	108	46	120	34
11	57	50	64	57	75	51		21	98	28	107	08	118	53
12	56	34	63	37	74	29		20	96	56	105	33	117	16
13	55	16	62	16	73	07		19	95	28	104	00	115	41
14	53	57	60	54	71	43		18	94	01	102	29	114	08
15	52	35	59	31	70	18		17	92	36	101	01	112	38
16	51	15	58	06	68	51		16	91	13	99	34	111	09
17	49	52	56	39	67	22		15	89	53	98	09	109	42
18	48	27	54	11	65	52		14	88	31	96	46	108	17
19	47	00	53	40	64	19		13	87	12	95	24	106	53
20	45	32	52	07	62	44		12	85	54	94	03	105	31
21	44	00	50	32	61	07		11	84	38	92	43	104	09
22	42	27	48	54	59	26		10	83	22	91	25	103	49
23	40	51	47	13	57	43		9	82	07	90	07	101	30
24	39	11	45	29	55	55		8	80	55	88	50	100	11
25	37	28	43	40	54	04		7	79	39	87	33	98	53
26	35	42	41	48	52	08		6	78	26	86	17	97	36
27	33	51	39	50	50	07		5	77	04	85	02	96	19
28	31	55	37	48	48	00		4	76	01	83	47	95	02
29	29	53	35	38	45	46		3	74	49	82	33	93	47
30	27	45	33	21	43	23		2	73	37	81	18	92	31
31	25	30	30	56	40	52		1	72	26	80	00	91	55
32	23	06	28	20	38	08		0	71	14	78	50	90	00

North declination under the earth, and South above it.

South declination under the earth, and North above it.

A Table shewing the Elevation of the Pole upon the several Circles of Position of the 11, 12, 2, and 3d. houses, for 60 degrees of Latitude.

Latit. of Place.	11 & 3 Poles Elevation		12 & 2 Poles Elevation	
1	0	29	0	51
2	0	59	1	43
3	1	29	2	35
4	1	59	3	27
5	2	29	4	19
6	3	00	5	11
7	3	31	6	04
8	4	02	6	57
9	4	32	7	49
10	5	03	8	41
11	5	34	9	33
12	6	05	10	26
13	6	36	11	18
14	7	07	12	11
15	7	38	13	04
16	8	09	13	57
17	8	41	14	50
18	9	13	15	43
19	9	45	16	36
20	10	18	17	30
21	10	51	18	23
22	11	25	19	17
23	11	58	20	11
24	12	32	21	05
25	13	07	21	59
26	13	42	22	53
27	14	18	23	47
28	14	54	24	43
29	15	30	25	38
30	16	07	26	33
31	16	44	27	29
32	17	21	28	25
33	17	59	29	21
34	18	38	30	17
35	19	18	31	14
36	19	58	32	11
37	20	39	33	08
38	21	20	34	05
39	22	02	35	02
40	22	45	36	00
41	23	29	36	58
42	24	14	37	57
43	25	00	38	56
44	25	47	39	55
45	26	34	40	54
46	27	22	41	53
47	28	11	42	53
48	29	02	43	53
49	29	54	44	54
50	30	47	45	55
51	31	41	46	56
51.32	32	11	47	28
52	32	37	47	57
53	33	34	48	59
54	34	32	50	01
55	35	32	51	03
56	36	33	52	05
57	37	35	53	08
58	38	39	54	11
59	39	45	55	14
60	40	53	56	18

FINIS.

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1 Is a Table to reduce ye Centesimes of a degree into Minuts & Seconds Sexagiman et Contra.

2 Table of Logar. Shewes If ye Sun moves 59.38'' in a day or 24 houres wt it doth in any time lesse then 24 houres by giuing ye part proportionall

3 A Table to Convert houres & minuts into degr & Minuts of ye Equator

A Table of ye Suns Decs for every degree & sixt pt of a deg in the Ecliptike

A Table of ye Suns Right Ascent for every degree & sixth part of a degree in ye Ecliptike

A Table of the Suns Difference of Ascention for Severall Latitudes

A Table of ye Suns Obligue Ascent for Severall Latitudes

A Table of Positions for Latt 51.32 North

A Table of the Elevation of ye Pole upon ~~every~~ the Severall Circles of Position of ye 12 11.2 & 3 houses for 60 degrees of Lattitude